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WATER QUALITY BRANCH ACTIVITIES IN NOVA SCOTIA 1965-1985

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INLAND WATERS DIRECTORATE
ATLANTIC REGION
WATER QUALITY BRANCH
MONCTON, NEW BRUNSWICK

WATER QUALITY BRANCH ACTIVITIES

IN NOVA SCOTIA

1965-1985

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INLAND WATERS DIRECTORATE
CONSERVATION AND PROTECTION
ENVIRONMENT CANADA

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A copy will be made available in French upon request

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ABSTRACT

This report gives a brief chronological overview of Water Quality Branch activities in the Province of Nova Scotia. It was not designed to be an exhaustive treatise but only to present highlights of the work accomplished over the 1965-1985 period.

This document summarizes the background of the Water Quality Branch programs, projects and studies, explaining when and why they were initiated, how they were conducted and what type of data were generated. It elucidates how the Water Quality Branch evolved over the years in response to new policies and changing institutional needs. It was written with the expectation that reflection on past activities would germinate the seeds for future joint Federal/Provincial scientific endeavors.

RÉSUMÉ

Le présent rapport donne un bref aperçu chronologique des activités de la Direction de la qualité des eaux dans la province de la Nouvelle-Écosse. Cet ouvrage ne constitue pas une analyse détaillée des activités, mais il vise plûtot à signaler les faits saillants des travaux accomplis pendant la période 1965-1985.

Le document expose l'origine des programmes, projets et études de la Direction de la qualité des eaux; il précise également le démarrage et le pourquoi des travaux, la façon dont ils ont été menés, ainsi que le genre de données qui en sont découlées. De plus, il explique comment la Direction de la qualité des eaux s'est adaptée au cours des années aux nouvelles politiques et aux besoins variés des établissements. Il a été rédigé dans l'espoir que la rétrospective d'activités passées favorise la conclusion de futures ententes scientifiques profitables entre le gouvernement fédéral et la province.

AUTHOR'S NOTE

It should be noted that this report is an update of an original document prepared by P.E. Belliveau and H.S. Bailey in 1982 entitled "Water Quality Branch Activities in Nova Scotia: 1965-1980". The decision to update the document was based on two factors; the first being the frequent demand for the original report which is now out of print and the second being the number of changes the Water Quality Branch has undergone over the past five years as it endeavored to respond to new and changing requirements. It is hoped that this updated version will prove even more worthwhile than the first edition.

ACKNOWLEDGEMENTS

The authors wish to express their gratitude to Hal Bailey for providing useful information on the project and studies described in this report and for his assistance in the preparation of maps. Louise Boulter's assistance in typing and proofreading the manuscript is also greatly appreciated.

INTRODUCTION

The Water Quality Branch, Inland Waters Directorate, Atlantic Region, conducts water quality surveys and studies designed specifically to provide ambient water quality data and interpretive information to water resource managers and pollution control agencies. Its present role is to:

1. Provide scientific and technical information and advice to government, private agencies and the public, and to promote the wise management of the quality of waters:

(a) shared by Canada and the United States, and by one or more provinces and/or territories;

(b) on federal lands such as national parks, Indian reserves and heritage canals, and other properties and facilities where water resource management is primarily a federal responsibility;

(c) where there is federal responsibility such as for fisheries and wildlife;

2. Detect emerging water quality problems and to evaluate water quality issues on Canada's inland waters from a regional and national point of view.

The Branch's mandate to participate in these activities is derived from the various Federal Legislative Acts listed in Appendix I and from the Federal Policy Statement on Inland

Waters (1978). The Water Quality Branch has no regulatory or enforcement functions and its activities are limited to the inland aquatic environment.

The Water Quality Branch's principal areas of interest are:

- international and interprovincial waters;
- waters located in the territories, on federal lands or waters of significant national interests;
- waters affected by long-range transport of airborne pollutants (LRTAP);
- waters affected by toxic chemicals;
- freshwater used as supplies for human consumption;
- water quality conservation; and
- Canadian Water Quality Guidelines.

The Branch also negotiates and implements Federal-Provincial Water Quality Monitoring Agreements and provides advice, leadership and expertise in the development of Water Quality Objectives.

The data generated are used in the identification of emerging environmental problems and water quality trends, the production of data and interpretive reports, and as a data bank for water resource managers. All data collected are stored on the Water Quality Branch's National Water Quality Data Bank (NAQUADAT) and are available to users at minimal charge.

HISTORICAL OVERVIEW

a) Industrial Waters Section

In the early 1930's, the Federal Government, recognizing the emerging significance of water quality in Canada, created the Industrial Water Section within the Mines and Geological Branch of the Department of Mines and Technical Surveys. This action was in response to requests from Canadian Manufacturers, especially those of pulp and paper, and of soap, to study the natural and treated waters of Canada. Although this Section's work was curtailed during World War II it resumed in 1946.

During the 1950's and early 1960's, the Industrial Waters Section's emphasis shifted slightly to the collection of aquatic chemical data having geological significance from major bodies of water across Canada and the reporting of these data in a technical bulletin series entitled, "Industrial Waters of Canada". In order to accomplish this task, Canada was divided into eighteen large drainage basins and water quality surveys were carried out at a rate of one or two basins per year. Aside from these surveys the Section also provided operational and advisory services to other Departments on corrosion control, boiler feed-water treatment, and treatment of water supplies for non-potable use.

b) Water Quality Division

In the mid-1960's, because of its expertise in analyzing water samples and in assessing water quality, this unit was the logical choice fo expanding the role of the federal government in the field of water quality. Upon Departmental reorganization, the expanded Industrial Waters Section became the Water Quality Division within the Inland Waters Branch of the Department of Energy, Mines and Resources. The responsibilities of this new Division were to collect, interpret and disseminate data on the quality of freshwater in Canada, with the expressed purpose of identifying areas of pollution, establishing baselines of quality and monitoring these waters so that they would be properly used, managed and developed. With the establishment of a regional laboratory in Halifax (1964), which was later moved to Moncton (1966), the Water Quality Division also initiated the provision of analytical laboratory support to provincial agencies requiring water analysis. The original aim was to provide this service to the provinces only until they could develop their own laboratory capabilities. This action resulted in dividing Water Quality Division activities into two main categories: those conducted as part of the operational programs (Table I) and those which were carried out in support of other agencies (Table 2). This report focusses only on the former type of

activities.

c) Water Quality Branch

In 1971, as a result of the Department of the Environment Act (1970), the Water Quality Division was transferred to the new Department of the Environment and became the Water Quality Branch of the Inland Waters Directorate. Its assigned responsibilities were focussed on environmental concerns. In essence, its new role was to provide ambient water quality data and interpretive information to water resource managers and pollution control agencies. This information was to be employed for environmental assessment studies, pollution control legislation, assessment of the suitability of water for domestic and industrial uses, research and for input to federal/provincial and international agreements and commitments.

ACTIVITIES

The Water Quality Branch's first major monitoring effort was the International Hydrological Decade (I.H.D.) National Water Quality Monitoring Program (1965-1974). The overall aim of this UNESCO program in the field of hydrology was described as:

> "... to accelerate the study of water resources and the regiment of waters with a view of their rational management in the interest of mankind; to make known the need for hydrological research and education in all countries; and to improve their ability to evaluate their resources and use them to the best advantage".

In Canada, the Water Quality Branch's aim was to establish and maintain a national water quality and pollution evaluation network and to obtain a nationwide baseline inventory of surface water quality. In Nova Scotia, the program consisted of monthly sampling by lay collectors at sixty water quality stations for a broad range of parameters. As such, the program provided useful estimates of water quality conditions at selected sites and proved helpful for long range planning. A short description of this project is given in Appendix II.

Concurrently, as an adjunct to this project, the I.H.D.

Research Basin study was also implemented. This was a multi-agency study which was designed to provide hydrological data from "representative watersheds". Measurements were to be performed on all parameters in the hydrological cycle, so that statistical and/or physical models could be developed for major climatic and geological areas. Principles derived from these models were to be used to synthesize the hydrological characteristics of ungauged areas. Four of these research basins were situated in Nova Scotia (Appendix III).

In August 1971, the Water Quality Branch initiated its first comprehensive survey for toxic substances in Nova Scotia, by collecting water samples from ninety-one surface water sites and analysing these for mercury, cadmium and selected organochlorine pesticides (Appendix IV). In October of the same year, the Water Quality Branch conducted another special study, this one designed to gather data on municipal water supplies in the Province (Appendix V).

In May 1972, a joint federal/provincial study (Appendix VII) on groundwater chemistry was launched. The aim of this project was to gather sufficient water quality data to characterize the principle aquifers in Nova Scotia. In total four hundred and sixty-five samples, from forty-six different aquifers, were collected and analyzed. For this study, sampling was conducted by provincial staff while sample analysis was performed by the Water Quality Branch laboratory

in Moncton.

When the I.H.D. National Water Quality Monitoring Program terminated in 1974, the Water Quality Branch reassessed the need to continue this type of program. The emphasis of the I.H.D. Program had been on maintaining a resource inventory but the mandate of the Water Quality Branch had been expanded when it became part of the Department of the Environment. There was now a responsibility to examine water quality in relation to a wider range of water uses. Accordingly, it was realized that the need existed for on-site field measurements and specialized sampling procedures necessitating the replacement of lay collectors with qualified field staff.

In April 1974, the I.H.D. National Water Quality Monitoring Program was replaced by an expanded Water Quality Branch National Water Quality Monitoring Program (Appendix VII) which, in Nova Scotia, consisted of quarterly sampling by Branch staff at ninety-nine sites. The employment of in-house staff to conduct the field work meant that the Branch could now gather field data on such parameters as dissolved oxygen, pH and specific conductance and it could also broaden its chemical, physical and biological parametric capability. As a result, the data generated by this study included major ions (calcium, magnesium, sodium, potassium, bicarbonate, sulfate and chloride), total hardness,

physical parameters (pH, colour, turbidity, suspended solids, specific conductance and temperature) and biological constituents (chlorophyll a, bacteria, etc.). Nutrients such as phosphorus, nitrogen, carbon and silica were also measured routinely. In addition, toxic and other substances including metals and trace elements, pesticides, phenolic materials and cyanides were periodically determined at selected sites. It should be emphasized that for this particular monitoring study, sampling stations were located with a view to observing general overall water quality conditions in rivers and streams rather than to study local and regional conditions in detail.

A review of Departmental activities in 1977-78 coincided with the development of new federal policies concerning inland waters. A number of these policies had significant impact on Branch monitoring programs. The new federal priorities required the Branch to redefine its existing programs and to concentrate on boundary water issues. Furthermore, guidance was given as to the types of issues which should be addressed. These included identification of pollution problems, trend assessment, surveillance of water quality objectives and the assessment of the effectiveness of regulatory measures. The demand was no longer for data only but for interpretation of these data.

As a first step, the routine ambient water quality

monitoring sites in the Atlantic Region were considerably reduced so as to include only stations of direct federal interest. In Nova Scotia, this meant a reduction from ninety-nine sites to seven permanent on-going monitoring sites. This new program, called the Atlantic Region Overview Network (Appendix VIII) was designed to maintain continuity of data and also to maintain regional inventory of baseline information for:

(1) the periodic assessment of the quality of the Atlantic Region's aquatic environment;

(2) the determination of gross trends in the aquatic environment; and

(3) the fulfillment of the Water Quality Branch commitment to provide International Agencies with ocean input data.

In July 1979, the Water Quality Branch implemented the first of a series of pollutant specific surveys (Appendix IX). The aim of these surveys was to screen for specific environmental contaminants (toxic substances) covering as broad a geographical area as possible and concentrating on perceived critical areas or in areas of federal interest. In Nova Scotia these pollutant specific surveys were conducted annually until 1982. It should be noted however, that the

parameters screened varied from year to year. By the completion of this project, the following parameters had been screened: pentachlorophenols, triaryl phosphate, chlorobenzenes, phthalate esters, polyaromatic hydrocarbons, mirex, carbofuran, PCB's, 2,4-D, 2,4,5-T, MCPA, atrazine, Guthion, endrin, lead, arsenic, mercury and cadmium.

The Water Quality Branch initiated acid rain studies in the Atlantic Region in 1979. The first to be implemented in Nova Scotia was the Acid Rain Sensitivity Survey (Appendix X). This study was designed to gather surface water data in order to prepare acid rain sensitivity maps. The following year, in 1980, the Acid Rain Baseline Sampling Network (Appendix XI) was established. The purpose of this long term study was to maintain a network of benchmark surface water stations in order to identify temporal trends in parameters sensitive to acid rain.

A third acid rain study, within Nova Scotia, was also started in 1980. This was the Kejimkujik Basin LRTAP (Long Range Transport of Atmospheric Pollutants) Survey, which had as primary aim the study of temporal variations in parameters affected by acid precipitation in a brown-water basin (Appendix XII).

In October of 1980, a project was launched to measure the quantity of specific toxic chemicals in atmospheric fallout

(Appendix XIII). This study involved the collection and analysis of rain water from two sites in the Atlantic Region, one of which was located in Nova Scotia at the Kejimkujik National Park. A few years later a second collector was installed in Nova Scotia, in the Truro area. The parameters analyzed in this study were organochlorine pesticides and PCB's.

In 1983-1984, the Water Quality Branch conducted the Shubenacadie Basin Study (Appendix XIV). The goal of this study was to assess levels of toxic metals in the Shubenacadie Lake system, and to compare these levels with those from other studies. In 1983, the Water Quality Branch also started the LRTAP Lakes program. The basic objective of this program is the detection and determination of trends, attributable to acid precipitation, in Nova Scotia lakes. The network of lakes, included in this study, has grown to forty-four, all in the Yarmouth and Kejimkujik Park area (Appendix XV).

As a follow up to the Pollutant Specific Surveys completed in 1982, a Toxic Chemical Survey (Appendix XVI) was conducted in the Annapolis Valley in 1984. This study involved the collection and analysis of water, bottom sediments and fish for a large number of possible environmental contaminants.

Finally, in May 1985, a Municipal Water Toxic Chemical Survey was implemented jointly with the Nova Scotia Department of Health (Appendix XVII). The objectives of this project are to screen for specified environmental contaminants in raw domestic water sources in the province and to collect general water quality data. Sampling is done twice a year (spring and fall) and the samples are analyzed for a large number of parameters.

All of these projects are described in detail in the appended material. Each Appendix outlines the project title, submitter I.D., period of record, objective(s), field sampling staff, parameters analysed, NAQUADAT station numbers and the approximate number of samples analyzed at each station. Corresponding station reference numbers are also given. Maps have been appended to facilitate the location of sampling sites. A complete station listing, describing the exact location of each station, established before 1985, is presented in Table 3, and those established in 1985 are listed in Table 4.

DATA AND REPORTS

Traditionally water quality data were handled by manual means, however, as the quantity of data increased, the Water Quality Branch was soon overwhelmed by manual filing and sorting methods. The need for flexibility and speed in retrieving data (in a variety of formats) also became important as the Branch started focussing on data interpretation. This led to the introduction of a computerized data handling system called NAQUADAT (National Water Quality Data Bank). NAQUADAT provides a flexible system for storing the results of environmental analyses and other pertinent information related to the samples and the sampling station, and for producing a large variety of retrieval reports, statistical analyses and graphical presentations. In general, all of the data from the projects listed in Tables 1 and 2 are stored on NAQUADAT. These data are available from the Water Quality Branch Head Office in Ottawa and most are also available regionally from the Moncton Office.

Recently, the Water Quality Branch in Moncton, reacting to technological advances and responding to regional requirements for storage, management and interpretation of water quality data, acquired a VAX 11/750 computer and equipped it with the RS-1 statistical software package.

This VAX 11/750 computer is also used to run the LABS-11 laboratory data management system and various other programs. Branch staff have recently developed the NABIODAT data management system. This system will be used for the storage and processing of biological data and is in direct response to the growing biological components of water quality monitoring and survey studies being conducted.

To date the Water Quality Branch has prepared or has participated in the preparation of thirty-four reports, publications and/or presentations utilizing water quality data and aquatic information gathered by the Branch in Nova Scotia. These are listed in Appendix XVIII.

OUTLOOK FOR THE FUTURE

The Water Quality Branch has conducted a number of aquatic environmental studies in Nova Scotia over the past twenty years, however there is still a lot of work to be done. The vastness of the Province, the hydrological variability and the severity of the winter makes the collection of aquatic environment data difficult, time consuming, and manpower intensive. Yet, these dynamic hydrological conditions make it necessary to maintain on-going monitoring programs in order to keep water quality data relevant to current needs.

Awareness within the scientific community and the public at large of the susceptibility of the aquatic environment to degradation has increased in recent years. This has resulted in a shift of emphasis from routine ambient water quality monitoring to more problem specific studies. Analysis of Departmental priorities indicate that future Water Quality Branch activities in Nova Scotia will most likely focus on the following:

(1) Toxic substances
(2) Long range transport of atmospheric pollutants
(3) Development of water quality objectives, and
(4) Federal/Provincial co-operation in data acquisition,

analysis, storage, interpretation and dissemination.

It is felt that through increased federal/provincial co-operation, effected by joint planning and work sharing, the future could be more productive for both levels of government. This is the opportunity we are now presented with and should be exploring in order to meet future requirements.

TABLE 1

SUMMARY OF WQB PROJECTS

1965-1985

APPENDIX #	PROJECT TITLE	SAMPLING PERIOD	STATIONS	SAMPLES ON FILE	FREQUENCY OF SAMPLING
II	I.H.D. National Water Quality Monitoring	1965-1974	60	2531	12/yr
III	I.H.D. Research Basin Study	1970-1974	6	159	12/yr
IV	Nova Scotia Surface Water Quality Survey	1971-1972	91	91	Once
V	WQB Municipal Water Survey	1971	11	11	Once
VI	Nova Scotia Groundwater Study	1972-1973	46	465	Irregular
VII	WQB National Water Quality Monitoring	1974-1978	99	1130	4/yr
VIII	Atlantic Region Overview Network	1978-1985	7	204	6/yr
IX	Pollutant Specific Surveys	1979-1982	39	267	Irregular
X	Acid Rain Sensitivity Survey	1979-1980	54	54	Once
XI	Acid Rain Baseline Sampling Network	1980-1985	12	756	12/yr
XII	Kejimkujik Basin LRTAP Survey	1980-1985	4	900	12/yr or daily
XIII	Organics in Atmospheric Precipitation	1980-1985	2	62	12/yr
XIV	Shubenacadie Basin Study	1983-1984	13	78	6/yr
XV	LRTAP Lakes Monitoring	1983-1985	43	215	2/yr
XVI	Toxic Chemical Survey (Annapolis Valley)	1984	11	127	Irregular
XVII	Municipal Water Toxic Chemical Survey	1985	10	20	2/yr
			TOTAL	7070	

TABLE 2

SUMMARY OF WQB SUPPORTED PROJECTS [a]

1965-1985

PROJECT TITLE	CLIENT	SAMPLING PERIOD	STATIONS	SAMPLES ON FILE
Fisheries Study	Dept of Fisheries and Oceans	1970-1973	81	142
Park Surveys	Canadian Wildlife Service	1970-1980	63	1815
Municipal Water Supply	City of halifax	1970-1973	4	16
Amherst water Commission	Town of Amherst	1972-1974	9	17
Federal Buildings - Water Supply	Dept. of Fisheries and Oceans	1972	3	3
Yarmouth Water Supply	Town of Yarmouth	1972	2	2
NTA Survey	CCIW	1972-1975	9	30
Indian Lands	Dept. Indian Affairs & Northern Development	1973	5	5
Waterfowl Area Survey	Canadian Wildlife Service	1973-1975	8	168
Agricultural Study	Dept. Agriculture	1974	3	3
Atlantic Surveillance Network	Environmental Protection Service	1974-1976	32	196
Shubenacadie Lakes Study	Province of Nova Scotia	1974	20	281
Acid Rain Study	Dept. of Fisheries and Oceans	1980	25	200
Radioisotope Monitoring Network	NWRI	1981-1985	2	120
Organotin Survey	NWRI	1984-1985	4	16
			TOTAL	3014

a. Other projects were supported in the late sixties and early seventies but the data for these were not placed on NAQUADAT.

TABLE 3

STATION LISTING[a]

NAQUADAT #	STATION REFERENCE # [b]	DESCRIPTION	# OF SAMPLES [c]
00NS01DA0001	1	Meteghan River at Bridge, 1.8 km above Hwy 1 bridge, Meteghan, Digby County.	121
00NS01DB0004	2	Sissiboo River Power Plant Tailrace, sissiboo Falls, Digby County.	34
00NS01DB0005	3	Bear River East Branch at Tailrace of Ridge Power Plant, Bear River, Digby County.	37
00NS01DC0001	4	Annapolis River at Bridge 850 m South of Hwy 1 (WSC gauge), Wilmot station, Annapolis County.	160
00NS01DC0004	5	Annapolis River at Highway Bridge, Aylesford, Kings County.	7
00NS01DC0022	6	Moose River at Hwy 1 Bridge at Clementsport, Annapolis County.	1
00NS01DC0028	7	Annapolis River at Hwy 10 Bridge Middleton, Annapolis County.	23
00NS01DC0083	8	Annapolis River at Paradise from Hwy Bridge, Annapolis County.	14
00NS01DC0084 50NS01DC0084	9	Annapolis River 2 km East of Aylesford at Dalhousie Road, Kings County.	29 (3)
00NS01DC0089	10	Annapolis river above Greenwood at Hwy 201 Bridge, Annapolis County.	6
00NS01DC0090	11	Annapolis River at Bridge, Lawrencetown, Annapolis County.	6
00NS01DC0091 (50NS01DC0091)	12	Annapolis River at Palmer Rd, Auburn	3 (9)
00NS01DD0002	13	Sharpe brook 3.6 km South of Hwy 1 at Cambridge Station (WSC Gauge), Lloyds, Kings County.	63
00NS01DD0003	14	Sharpe Brook Site 2, Kings County.	1
00NS01DD0006	15	Cornwallis river 100 m below Cold Brook, Kentville, Kings County.	40

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01DD0017	16	Cornwallis River 450 m NE of Hwy 358 Bridge, Port williams, Kings County.	1
00NS01DD0024	17	Gaspereau River at Hwy 1 Bridge Avonport, Annapolis County.	1
00NS01DD0025	18	Canard river SE of Canard, Kings County.	1
00NS01DD0026	19	Habitant creek near Canning, Kings County.	1
00NS01DD0027	20	Cornwallis river at Hwy 41 Bridge Port Williams, Kings County.	1
00NS01DD0032	21	Cornwallis river at Hwy 306 Bridge 1.2 km South of Somerset, Kings County.	6
00NS01DD0035	22	Gaspereau River at Hwy Bridge in Gaspereau, Kings County.	1
00NS01DD0036 (50NS01DD0036)	23	Cornwallis River at Lovett Road Bridge near brooklyn Corner, Kings County.	6 (9)
00NS01DD0037 (50NS01DD0037)	24	Habitant creek at Hillaton 50 m above Secondary road bridge, Kings County.	6 (12)
00NS01DD0038 (50NS01DD0038)	25	Cornwallis river at Hwy Bridge at Waterville, Kings County.	3 (9)
00NS01DD0039 (50NS01DD0039)	26	Canard river near aboiteau, Kings County.	3 (9)
00NS01DE0001	27	Avon River at Nova Scotia Power Plant, South of Windsor Forks, Hants County.	98
00NS01DE0011	28	Missaguash River at TCH crossing Cumberland County.	1
00NS01DE0012	29	Avon River at Hwy Bridge North of Windsor Forks, Hants County.	15
00NS01DE0013	30	Hebert River at Hwy 15 Bridge near Brooklyn, Hants County.	1

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01DE0014	31	Meander River at Hwy 15 Bridge near Brooklyn, Hants County.	1
00NS01DE0015	32	Avon River approx. 0.5 km below NSPC Power House, South of Windsor forks, Hants County.	1
00NS01DF0002	33	Kennetcook River at Hwy 354 Bridge, Kennetcook, Hants County.	37
00NS01DF0006	34	Cogmagun River Mouth at Hwy 215 Hants County.	1
00NS01DF0007	35	Kennetcook River at Bridge, Scotch Village,Hants County.	1
00NS01DG0001	36	Stewiacke River at Hwy 336 Bridge Eastville, Colchester County.	54
00NS01DG0002	37	Shubenacadie River at Hwy 2 Bridge, Enfield, Hants County.	49
00NS01DG0003	38	Nine Mile River at Hwy 2 Bridge Elmsdale, Hants County.	29
00NS01DG0008	39	Shubenacadie River 400 m above Nine Mile River, Hants County.	48
00NS01DG0011	40	Gays river at Bridge below South gay river, Halifax County.	13
00NS01DG0019	41	Stewiacke River at Hwy 2 Crossing Colchester County.	1
00NS01DG0049	42	Brook between Roy Lake and Burton Lake at road from Latties Brook to MacPhees corner, Colchester County.	1
00NS01DG0050	43	Hebert river at Hwy 354 crossing Hants County.	1
00NS01DG0052	44	Stream flowing from Lake thomas to Lake Fletcher approx. 1 km below Hwy Crossing from Fall river to Fall River station , Halifax County.	6
00NS01DG0053	45	Stream flowing from Muddy Pond to Lake Thomas , Halifax County.	6

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01DG0054	46	Stream flowing from Lake William to Lake Thomas at Hwy 2 Bridge, Halifax County.	6
00NS01DG0055	47	Stream flowing from Three Mile Lake to Powder Mill Lake approx. 20 m. downstream from Three Mile Lake, Halifax County.	6
00NS01DG0056	48	Powder Mill Lake Brook near Waverly, Halifax County.	6
00NS01DH0012	49	Fraser Brook at WSC gauge, Archibauld, Colchester County.	51
00NS01DH0013	50	Salmon River at Bridge Murray, Colchester County.	41
00NS01DH0020	51	Salmon River at Hwy Bridge, Truro, Colchester County.	16
00NS01DH0021	52	Great Village River at Great Village, Colchester County.	1
00NS01DH0022	53	Debert River at Hwy 2 Crossing Colchester County.	1
00NS01DH0023	54	North River at North River, Colchester County.	20
00NS01DH0027	55	Salmon River at Old Hwy 4 Bridge Kempton, Colchester County.	19
00NS01DH0028	56	Foley Lake at Outflow, Colchester County.	1
00NS01DJ0001	57	Bass River at Bass River, Colchester County.	2
00NS01DJ0006	58	Economy River at Economy Centre Point, Colchester County.	2
00NS01DJ0007	59	Parrsboro River at Parrsboro Dam, Cumberland County.	1
00NS01DJ0008	60	Moose River 1.2 km North of Moose River, Cumberland County.	1
00NS01DJ0009	61	Harrington River at Hwy 2 Bridge, Cumberland County.	1

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01DJ0010	62	North River at Lower Five Islands Colchester County.	1
00NS01DK0002	63	Shulie River at Road Bridge near Lower Point, Cumberland County.	1
00NS01DK0003	64	Apple River near East Apple River Cumberland County.	1
00NS01DK0004	65	McRitchie Brook near West Advocate Cumberland County.	1
00NS01DK0005	66	Greville River near Port Greville Cumberland County.	1
00NS01DK0006	67	Fox River near fox River, Cumberland County.	1
00NS01DK0007	68	Parrsboro River 5 km N of Parrsboro grom Hwy 2, Cumberland County.	1
00NS01DK0008	69	Shulie River from dirt road 10 km S of Shulie, Cumberland County.	1
00NS01DK0009	70	East Apple River from Hwy 209 Cumberland County.	1
00NS01DL0002	71	Nappan River at Nappan, Cumberland County.	1
00NS01DL0003	72	McCan River at McCan, Cumberland County.	1
00NS01DL0004	73	Hebert River at River Hebert East Cumberland County.	2
00NS01DL0007	74	East Brook at Hwy 2 Bridge Southhampton, Cumberland County.	3
00NS01DL0009	75	Kelley River at Nine Mile Ford Game Sanctuary, Cumberland County.	121
00NS01DL0010	76	McCan River at Hwy 2 Bridge Southhampton, Cumberland County.	23
00NS01DL0012	77	McCan River at Hwy 302 at McCan, Cumberland County.	1
00NS01DM0004	78	Shiminikas River at Shiminikas Bridge, Cumberland County.	2

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01DM0006	79	Laplanche River at Hwy 366 Bridge, Cumberland County.	1
00NS01DN0001	80	Wallace River at Wentworth Centre, Cumberland County.	135
00NS01DN0002	81	River Philip at Hwy 204 Bridge Oxford, Cumberland County.	44
00NS01DN0003	82	Wallace River at Hwy 6 Bridge West of Wallace, Cumberland County.	1
00NS01DN0010	83	River Philip at TCH Bridge Oxford, Cumberland County.	36
00NS01DN0013	84	Black River at Bridge 350 m above River Philip, Oxford, Cumberland County.	1
00NS01DN0014	85	River Philip at Collingwood Corner, Cumberland County.	1
00NS01DØ0001	86	River John at Welsford (WSC Gauge) Pictou County.	58
00NS01DØ0003	87	Dewar River at Hwy 6 Crossing West of Malagash, Colchester County.	4
00NS01DØ0004	88	Millard Creek at Hwy 6 Crossing Colchester County.	1
00NS01DØ0006	89	Waugh River at Waugh River, Colchester County.	1
00NS01DØ0007	90	Toney River at Hwy 6 Crossing Toney River, Pictou County.	1
00NS01DØ0008	91	Caribou River at Hwy 6 Crossing Pictou County.	2
00NS01DØ0009	92	Waugh River at the Falls, Colchester County.	1
00NS01DP0001	93	Middle River at Bridge near Hwy 289 (WSC Gauge, Rocklin, Pictou County.	77
00NS01DP0008	94	East River (West Branch) at at Bridge, Hopewell, Pictou County.	47

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01DP0009	95	East River of Pictou at New Glasgow Causeway , Pictou County.	25
00NS01DP0010	96	West River at Durham Pictou County .	38
00NS01DQ0001	97	Sutherland River at McPherson's Mills, Pictou County .	1
00NS01DQ0002	98	French River West Branch at French River Hwy 4, Pictou County.	1
00NS01DQ0003	99	Barney's River at Barney River Station at Hwy 104, Pictou County.	1
00NS01DR0001	100	South River at St. Andrews Antigonish County.	57
00NS01DR0002	101	South Rights River at Old Hwy Bridge, Silvan Valley, Antigonish County.	31
00NS01DR0009	102	South River at Tower, South River Station, Antigonish County.	1
00NS01DR0022	103	North River Str. at North Lakevale, Antigonish County.	1
00NS01DS0004	104	Pomquet River at Pomquet, Antigonish County.	1
00NS01DS0005	105	Afton River near Afton Station Antigonish County.	1
00NS01DS0006	106	Monastery Brook at Hwy 4 crossing Antigonish County.	2
00NS01DS0007	107	Tracadie River near Monastery Antigonish County.	1
00NS01DS0008	108	Black Avon River at Black Avon Antigonish County.	1
00NS01DS0009	109	Grant's Lake Outlet Guysborough County.	1
00NS01EA0001	110	Tusket River at Wilson's Bridge Yarmouth County.	165
00NS01EB0004	111	Clyde River at Hwy 3 Bridge Clyde River, Shelburne County.	1

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01EB0006	112	Barrington River at Barrington Shelburne County.	1
00NS01EC0004	113	Roseway River at Hwy 3 Crossing, Shelburne County.	1
00NS01EC0005	114	Roseway River (WSC Gauge), Lower Ohio, Shelburne County.	93
00NS01ED0001	115	Mersey River at outlet of George Lake (WSC Gauge), Eel Weir, Queens County.	77
00NS01ED0002	116	Mersey River at Big Falls Queens County.	56
00NS01ED0003	117	Mersey River at Milton, Queens County.	1
00NS01ED0005	118	Mersey River below Mill Falls SW of Maitland Bridge (WSC Gauge), Annapolis County.	858
00NS01ED0008	119	Sable River at Hwy 3 Bridge Sable River, Shelburne County.	1
00NS01ED0011	120	Broad River at Hwy 3 Bridge Queens County.	1
00NS01ED0012	121	Tidney River at Hwy 3 Bridge Sable River, Shelburne County.	1
00NS01ED0014	122	Mersey River at Hwy 8 Bridge Maitland Bridge, Annapolis County.	60
00NS01ED0015	123	Upper Mersey River, Annapolis County.	1
00NS01ED0020	124	Mersey River at Upper Hwy Bridge, Potanook, Queens County.	23
00NS01ED0030	125	Rodger's Brook, Kejimkujik National Park, Annapolis County.	60
00NS01EE0001	126	Medway River at Bridge (WSC Gauge), Charleston, Queens County.	213
00NS01EE0002	127	Medway River at Greenfield, Queens County.	60

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01EE0003	128	Medway River at outlet of Eel Lake, (WSC Gauge), Harmony Mills, Queens County.	82
00NS01EE0007	129	Petite River at Petite River Bridge, Lunenburg County.	1
00NS01EF0002	130	Lahave River at West Northfield Bridge on Brumm Road, (WSC Gauge), Lunenburg County.	99
00NS01EF0003	131	Lahave River at Hwy 10 Bridge Cookville, Lunenburg County.	23
00NS01EF0013	132	Lahave River at Hwy 10 Bridge Meisners, Lunenburg County.	23
00NS01EF0014	133	North Lahave River at Hwy Bridge 2.2 km SE of Maplewood, Lunenburg County.	20
00NS01EG0003	134	Gold River at Hwy 3 Bridge Chester Basin, Lunenburg County.	1
00NS01EG0005	135	Gold River at Bridge 300 m East of Hwy 12, New ross, Lunenburg County.	8
00NS01EG0006	136	Gold River at Hwy 103 Bridge, Chester Basin, Lunenburg County.	7
00NS01EH0001	137	Indian River at Sandy Lake outlet Halifax County.	59
00NS01EJ0001	138	Sackville River at Hwy 1 Bridge Bedford, Halifax County.	51
00NS01EJ0013	139	Little Salmon River at Hwy 7 Bridge, Halifax County.	1
00NS01EK0002	140	Musquodoboit River at Crawford Falls, Halifax County.	35
00NS01ED0007	141	Musquodoboit River at Hwy 7 Musquodoboit Harbour, Halifax County.	7
00NS01EL0007	142	Tangier River above Hwy 7 Bridge (above tide), Halifax County.	1
00NS01EM0001	143	East River Sheet Harbour at Canal above Power House, Halifax County.	32

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01EM0002	144	West River Sheet Harbour at Hwy 7 Bridge, Halifax County.	49
00NS01EN0002	145	Liscomb River at Hwy 7 Bridge Liscomb Mills, Guysborough County.	104
00NS01EN0012	146	Ecum Secum River at Bridge on Road to Fleet Settlement Guysborough County.	1
00NS01EØ0001	147	St. Mary's River at Hwy 7 Bridge (WSC Gauge), Stillwater, Guysborough County.	217
00NS01EØ0002	148	West River St. Mary's at Bridge Glenelg, Guysborough County.	36
00NS01EP0004	149	Country Harbour River 4.8 km South of Country Harbour Crossroads off Hwy 316, Guysborough County.	1
00NS01EQ0001	150	Salmon River at Ogden, Guysborough County.	35
00NS01EQ0006	151	New Harbour River near Upper New Harbour, Guysborough County.	1
00NS01EQ0010	152	Guysborough River at Guysborough Intervale, Guysborough County.	1
00NS01ER0001	153	Clam Harbour River near Birchtown Guysborough County.	124
00NS01FA0001	154	River Habitants, Glenora, Inverness County.	83
00NS01FA0005	155	Inhabitants River at Cleveland Richmond County.	1
00NS01FA0006	156	Mabou River at Mabou, Inverness County.	1
00NS01FA0007	157	Southwest Mabou River at Southwest Mabou, Inverness County.	1
00NS01FB0001	158	Northeast Margaree River at Bridge, Margaree Valley (WSC Gauge), Inverness County.	204
00NS01FB0005	159	April Brook 250 m above Hwy Bridge (WSC Gauge), Gillisdale, Inverness County.	70

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
01NS01FB0011	160	Southwest Margaree at Bridge above Upper Margaree (WSC Gauge), Inverness County.	67
00NS01FB0012	161	Margaree River at Margaree Harbour, Inverness County.	1
00NS01FB0013	162	MacKenzies Bk. at Kingcross Inverness County.	1
00NS01FC0001	163	Grande Anse River near Pleasant Bay, Inverness County.	1
00NS01FC0002	164	Cheticamp River at Hwy Crossing Inverness County.	1
00NS01FC0003	165	MacKenzie River at Hwy Bridge on Cabot Trail, MacKenzie Point, Inverness County.	17
00NS01FC0004	166	Cheticamp River above Robert Brook at Park Campground, (WSC Gauge), Inverness County.	43
00NS01FD0001	167	Ingonish River at Hwy Crossing Victoria County.	1
00NS01FD0002	168	Middle Aspy River near Dingwall Victoria County.	1
00NS01FD0003	169	Clyburn Brook at Cabot Trail Ingonish Centre, Victoria County.	41
00NS01FD0004	170	North Aspy River at Hwy Bridge on Cabot Trail, Big Intervale Cape North, Victoria County.	17
00NS01FD0005	171	Warren Brook, East of Warren Lake at Bridge, Victoria County.	17
00NS01FD0006	172	Halfway Brook at Hwy Bridge on Cabot Trail, Neil Harbour, Victoria County.	17
00NS01FD0007	173	Wreck Cove Brook at Cabot Trail (WSC Gauge), Wreck Cove, Victoria County.	45
00NS01FD0008	174	Ingonish River at South Ingonish Harbour, 360 m above Cabot Trail Victoria County.	22

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01FE0001	175	Indian Brook at Cabot Trail (WSC Gauge), Indian Brook Victoria County.	80
00NS01FE0002	176	North River at Hwy Bridge, North River Bridge, Victoria County.	23
00NS01FF0002	177	Middle River at Middle River NW of Baddeck, Victoria County.	37
00NS01FF0003	178	Baddeck River at Baddeck Bridge Victoria County.	1
00NS01FG0003	179	Stream at Cain's Mtn, Victoria County.	1
00NS01FG0004	180	Skye River at Churchview, Inverness County.	1
00NS01FH0001	181	Grand River at Bridge at outlet of Loch Lomond (WSC Gauge), Richmond County.	44
00NS01FH0003	182	Lac Sec Outflow, Isle Madame Richmond County.	1
00NS01FH0004	183	Scott's River at Oban, Richmond County.	1
00NS01FH0005	184	Stream at Salem Road, Cape Breton County.	1
00NS01FJ0001	185	Salmon River at Salmon River Bridge, Cape Breton County.	102
00NS01FJ0002	186	Sydney River off Meadows Road 1.5 km West of Gillis Lake, Cape Breton County.	34
00NS01FJ0004	187	Mira River at Victoria Bridge, Cape Breton County.	1
00NS01FJ0005	188	Mira River at Marion Bridge Cape Breton County.	26
00NS01FJ0007	189	Sydney River at Sydney River, Cape Breton County.	1

TABLE 3 Co nt'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
00NS01FJ0008	190	Frenchvale Brook at North West Arm, Cape Breton County.	1
00NS01FJ0009	191	Little Bras D'Or at Bras D'Or Cape Breton County.	1
00NS01FJ0015	192	Indian River at Eskasoni Cape Breton County.	1
00NS01FJ0020 (50NS01FJ0020)	193	Mira River at Marion Bridge 500 m below Hwy 327 Bridge at Centre, Cape Breton County.	6 (6)
01NS01DA0002	194	Tedford Lake, Digby County.	5
01NS01DA0003	195	Killam Lake 250 m NW of Inlet from Lake George, Yarmouth County.	5
01NS01DA0004	196	Cedar Lake 100 m SW of Large Point at North End of Lake, Digby County.	5
01NS01DA0005	197	Lower Corning Lake 550 m SE of Corning brook, Digby County.	5
01NS01DA0006	198	Pierce Lake 175 m W of Northeastern Shore, Digby County.	5
01NS01DA0007	199	Coggins Lake about 300 m N of Southern Shore, Yarmouth County.	5
01NS01DC0008 (51NS01DC0008) (91NS01DC0008)	200	Ramsey Lake at Center, Annapolis County.	3 (11)
01NS01DC0009 (51NS01DC0009) (91NS01DC0009)	201	Pond at Klahamie campground, Aylesford , Kings County.	3 (11)
01NS01DC0010 (51NS01DC0010)	202	Nictaux River at dam, Nictaux Falls , Annapolis County.	3 (9)
01NS01DD0006 (51NS01DD0006) 91NS01DD0006	203	Silver Lake near Center, Lakeville , Kings County.	3 (11)
01NS01DE0001	204	Falls Lake at bridge 700 m West of Hwy 14, Vaughan, Hants County.	21

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
01NS01DE0002	205	North Canoe Lake Approx. 2 K from shore at extreme South end Lunenburg County.	1
01NS01DE0003	206	Card Lake approx. 1 m from shore at extreme Southern tip near N.S. Lands & Forests Picnic Site, Lunenburg County.	1
01NS01DE0004	207	Moore Lake approx. 2 k from shore in Northeastern Corner of Lake, Hants County.	1
01NS01DG0004	208	Powder Mill Lake at Center of Northern Part of Basin, Halifax County.	6
01NS01DG0007	209	Third Lake, about 125 m SE of Island in central part of basin 555 m at 326 from outlet to Three Mile Lake 580 m at 356 from Second Lake inlet 150 m at 099 from Island, Halifax County.	6
01NS01DG0009	210	Lake Thomas 50 m off Eastern Shore in Southern Basin, Halifax County.	6
01NS01DG0013	211	Lake Fletcher in Northern Basin 150 m North of main Island, Halifax County.	6
01NS01DG0026	212	Shortt Lake at outlet near Canada Cement Lafarge Ltd., Brookfield Plant, Colchester County.	1
01NS01DG0027	213	McGrath Lake approx. 2 m from Northwest Shore near new housing development, Hants County.	1
01NS01DG0031 (51NS01DG0031)	214	Shubenacadie Lake 2 km above inlet at centre, Halifax County.	3 (3)
01NS01DG0032 (51NS01DG0032)	215	Shubenacadie Lake in Upper Basin 300 m NE ofCochran Point, Hants County.	3
01NS01DG0053	216	Powder Mill Lake Center of Lake Halifax County.	6
01NS01DG0063	217	Perry Lake near Southeast Shore, Halifax County.	6

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
01NS01DG0064	218	Muddy Pond approx. 15 m from Western Shore, Halifax County.	6
01NS01DG0065	219	Three Mile Lake near Middle of Southwestern Bay, Halifax County.	6
01NS01DP0001	220	Middle River at Dam, Granton, Pictou County.	17
01NS01EA0002	221	Yarmouth Municipal Water Supply, Raw: at Lake George 15 km NE of Yarmouth, Yarmouth County.	5
01NS01EA0004	222	Jesse Lake, Yarmouth County.	5
01NS01EA0005	223	Doctor Lake 300 m SW of Large Island, Yarmouth County.	5
01NS01EA0009	224	Brenton Lake near Centre, Yarmouth County.	5
01NS01EA0010	225	Trefry Lake about 300 m NNE of outlet, Yarmouth County.	5
01NS01EA0011	226	Allen Lake about 250 m SW of Island, Yarmouth County.	5
01NS01EA0013	227	Milton Lake just north of Centre Yarmouth County.	5
01NS01EA0014	228	Churchill Lake about 300 m SW of inlet, Yarmouth County.	5
01NS01EA0016	229	Darling Lake 300 m S of inlet from Coggins Lake, Yarmouth County.	5
01NS01EA0019	230	Snarl Lake 440 m NE of Northwestern Outlet, Digby County.	5
01NS01EA0020	231	Bird Lake about200 m E NW Shore, Yarmouth County.	5
01NS01ED0001	232	Back Lake in middle of Lake, Queens County.	5
01NS01ED0002	233	Big Dam West Lake in Middle of Lake, Annapolis County.	5
01NS01ED0003	234	Big Dam East Lake in middle of lake, Annapolis County.	5

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
01NS01ED0004	235	Mountain Lake in Centre of North Part of Lake, Queens County.	5
01NS01ED0005	236	Peskowesk Lake 425 m NW of tip of Isle de L'Orignal, Queens County.	5
01NS01ED0006	237	Grafton Lake inCentre of Lake Queens County.	5
01NS01ED0007	238	Kejimkujik Lake 200 m SW of Peale Island, Queens County.	5
01NS01ED0008	239	High Lake inMiddle of Lake, Queens County.	5
01NS01ED0011	240	Coblielle Lake in Middle of Lake Queens County.	5
01NS01ED0013	241	Ben Lake in Middle of Lake, Queens County.	5
01NS01ED0014	242	Big Red Lake, Digby County.	5
01NS01ED0015	243	Mud Lake inMiddle of Lake, Queens County.	5
01NS01ED0016	244	Snake Lake in Middle of Lake, Queens County.	5
01NS01ED0017	245	Liberty Lake in Middle of Lake Digby County .	5
01NS01ED0019	246	Frozen Ocean Lake in Middle of Lake, Annapolis County.	5
01NS01ED0020	247	Central Lake in Middle to top part of Lake, Annapolis County.	5
01NS01ED0021	248	Little Red Lake at SE side of Lake, Digby County .	5
01NS01ED0022	249	Poplar Lake in Middle of Lake Digby County.	5
01NS01ED0025	250	Luxion Lake in Middle of Lake Annapolis County.	5
01NS01ED0027	251	Beaverskin Lake in middle of West part of Lake, Queens County.	5

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
01NS01ED0028	252	McGinty Lake in Middle of Lake Queens County.	5
01NS01ED0029	253	Peskawa Lake in Middle of Lake Digby County.	5
01NS01ED0030	254	Upper Silver Lake in middle of South basin, Queens County.	5
01NS01ED0032	255	Rossignol Lake at Upper Falls Dam NSPC 1, Queens County.	13
01NS01ED0043	256	Mount Tom lake, Kejimkujik National Park.	5
01NS01ED0047	257	George Lake, Kejimkujik National Park.	5
01NS01ED0048	258	Loon Lake, Kejimkujik National Park.	5
01NS01ED0049 (51NS01ED0049)	259	Kejimkujik Lake 500 m NE of Freeman Island, Queens County.	3 (3)
01NS01ED0050 (51NS01ED0050)	260	Lake Rosignol 650 m above dam at centre, Queens County.	3 (3)
01NS01EE0003 (51NS01EE0003)	261	Donhook Lake at Centre of Outlet 600 m above round Islands, Queens County.	3 (3)
01NS01EG0001	262	Lewis Lake near mouth of Rocky Brook inlet, approx. 2 km from South Shore, Lunenburg County.	1
01NS01EH0001	263	Dauphinees Mill Lake approx. 10 m from shore at extreme Southern tip near Hubbards, Lunenburg County .	1
01NS01EH0002	264	Uniacke Lake approx. 2 m from North Shore at Museum Grounds, Hants County .	1
01NS01EH0005	265	Ingram River at Hwy 103 Bridge, Halifax County.	1
01NS01EJ0003	266	Stillwater Lake extreme Southern tip at Hwy 213 Crossing, Halifax County .	1

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
01NS01EJ0004	267	West Lake approx. 2 m from Central Eastern Shore near Oland, Hants County.	1
01NS01EJ0005	268	Lewis Lake at outlet to Salvage Lake at Hwy Crossing from South Uniacke to east Uniacke, Hants County.	1
01NS01ER0001	269	Goose Harbour Lake at dam, Guysborough County.	1
01NS01FA0001	270	Port Hawkesbury Municipal Water Supply Raw at Middle of Landrie Lake, Richmond County.	3
01NS01FB0002 (51NS01FB0002)	271	Lake Ainslie 500 m from Southerly Tip, Inverness County.	6 (6)
01NS01FJ0001	272	Glace Bay Municipal Water Supply Dam at Middle of Sand Lake, Cape Breton County.	1
01NS01FJ0002	273	Bras D'Or Lake at Barra Strait Ferry, Iona, Victoria County.	1
02NS01DC0001 (52NS01DC0001)	274	Annapolis River estuary at Hwy 201 Bridge, Bridgetown, Annapolis County.	19 (3)
02NS01DC0002	275	Annapolis River at Control Gates above Causeway, Annapolis County.	9
02NS01DC0004 (52NS01DC0004)	276	Annapolis River near Mochelle at Centre, Annapolis County.	9 (15)
02NS01DD0002	277	Cornwallis river at Hwy 359 Bridge, Kentville, Kings County.	6
02NS01DE0001	278	Avon River Estuary at Hwy 1 Bridge, Windsor, Hants County.	4
02NS01DG0001	279	Shubenacadie River at Old Hwy 2 Bridge in Shubenacadie, Hants County.	16
02NS01DG0002	280	Stewiacke River at Bridge, Stewiacke East, Colchester County.	18
02NS01DG0003	281	Shubenacadie River at Bridge, Millford Station, Hants County.	18

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
02NS01DH0002 (52NS01DH0002)	282	Salmon River at Park Street Extension Bridge, Truro, Colchester County.	17 (3)
02NS01DL0001	283	La Planche River at Hwy 102 Bridge, Amherst, Cumberland County.	3
02NS01DP0001	284	Boat Harbour at Outfall, Pictou County.	1
02NS01DP0002	285	East River Estuary at Hwy 289 Bridge, New Glasgow, Pictou County.	5
02NS01DP0003	286	Pictou Harbour below Hwy 106 Causeway, Near Ruins, Pictou County.	4
02NS01DP0004 (52NS01DP0004)	287	East River of Pictou at Indian Cross Point, 700 m from right bank, Pictou County.	3 (3)
02NS01ED0001	288	Mersey River at Hwy 3 Bridge, Liverpool, Queens County.	5
02NS01EF0001	289	Lahave River at Hwy 3 Bridge, Bridgewater, Lunenburg County .	93
02NS01EL0001	290	Head of Jeddore near Salmon River Bridge, Halifax County .	1
02NS01FB0001	291	Margaree River at Easterly Bridge (East) Margaree, Inverness County .	15
02NS01FF0001 (52NS01FF0001)	292	St. Patricks Channel at Baddeck about 200 m SW of Lighthouse on Westerly end of Kidston Island.	3 (3)
02NS01FG0001	293	Barra Strait Estuary at RR Bridge Iona, Victoria County .	7
02NS01FH0001	294	St. Peters Inlet at Hwy 4 Crossing Richmond County.	1
02NS01FH0002	295	St. Peters Inlet below Hwy 4 Bridge at end of Canal, Richmond County.	6
02NS01FJ0001	296	Framboise Cove at Framboise, Richmond County.	1

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
03NS01DN0001	297	Pugwash Harbour at Hwy 6 Crossing, Cumberland County.	1
03NS01DP0001 (53NS01DP0001)	298	Pictou Harbour near Town Point Wharf, Pictou County.	3 (3)
03NS01DP0003 (53NS01DP0003)	299	Pictou Harbour between Jetty and Causeway 200 m from Sluice Gates, Pictou County.	3 (3)
03NS01ED0001 (53NS01ED0001)	300	Liverpool Bay 1 km above Mersey Bowater Pulp Mill at Fort Pt School, Channel Marker, Queens County.	3 (3)
03NS01EF0001	301	Lunenburg Bay near Lunenburg, Lunenburg County.	1
03NS01EF0002 (53NS01EF0002)	302	Lahave River at Yacht Club near West Lahave, Lunenburg County.	3 (3)
03NS01EG0001	303	Mahone Harbour near Mahone Bay Lunenburg County.	1
03NS01EJ0015 (53NS01EJ0015)	304	Halifax Harbour (Eastern Passage) near Shearwater Wharf, Halifax County.	6 (6)
03NS01ER0001 (53NS01ER0001)	305	Chedabucto Bay, 3 km ESE of King Point, Guysborough County.	6 (6)
03NS01FA0001	306	Strait of Canso near North Side Causeway, Nova Scotia.	1
03NS01FA0002	307	Strait of Canso near Point Tupper, Nova Scotia.	1
03NS01FA0003	308	Strait of canso at Canal Gatehouse on South Side of Causeway, Port Hastings, Inverness County, N. S.	12
03NS01FA0004 (53NS01FA0004)	309	Strait of Canso at Port Hawkesbury, 650 m W of Public Wharf, N.S.	3 (3)
03NS01FJ0001 (53NS01FJ0001)	310	Sydney Harbour 200 m SW of Sydney Engineering and Drydock, Cape Breton County.	6 (6)

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
05NS01DN0001	311	Oxford Water Supply from Concrete Reservoir, N. S.	1
05NS01DR0001	312	Antigonish Municipal Water Supply before Treatment, Spring and Brook Water collected in Reservoir, Antigonish County.	1
05NS01FB0001	313	Inverness Municipal Water Supply Non-Treated, Spring Fed Water Collected in two reservoirs, Inverness County.	1
05NS01FJ0001	314	Sydney Municipal water Supply, Water is pumped 5 miles from Middle Lake to Reservoir, Cape Breton County.	1
10NS01DB0002	315	Digby Town Well 3 near Chlorine Plant, Digby County.	18
10NS01DB0003	316	Jones Bottling Plant, Production Well, Weymouth, Yarmouth County.	23
10NS01DC0001	317	Bridgetown Main Prod. Well of Acadian Distillers, Annapolis County.	9
10NS01DD0001	318	Halls Harbour Community Well Kings County, Nova Scotia.	18
10NS01DD0002	319	Wolfville Town Well 2, Kings County, Nova Scotia.	15
10NS01DD0003	320	Coldbrook Main Prod. Well of Scotian Gold Plant, Kings County.	12
10NS01DD0004	321	Hall's Harbour Community Well Water Co-Op Well No. 2, Kings County, N.S. Groundwater Well No. 41.	2
10NS01DE0001	322	Newport Well, Hants County.	14
10NS01DG0001	323	Brookfield Well at Brookfield Cement Plant on Pleasant Valley Road, Colchester County.	18
10NS01DG0002	324	Upper Stewiacke Well, Colchester County, Nova Scotia.	7

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
10NS01DH0001	325	Truro New Well at Robie Street Colchester County, Nova Scotia.	8
10NS01DK0001	326	Parrsboro Well 2 miles North Cumberland County, Nova Scotia.	12
10NS01DL0008	327	Amherst Well 7 on Russell Street Cumberland County, Nova Scotia.	10
10NS01DL0010	328	Kelley River Well 1 at Chignecto Game Sanctuary, Cumberland County.	3
10NS01DL0011	329	Kelley River Well 2 at Chignecto Sanctuary, Cumberland County.	3
10NS01DL0012	330	Kelley River Well 3 at Chignecto Sanctuary, Cumberland County.	2
10NS01DN0001	331	Oxford Town Well 4, 1.5 miles Southeast of Oxford, Cumberland County, Nova Scotia.	24
10NS01DN0002	332	Pugwash Water from Block Street Well, Cumberland County, N.S.	6
10NS01DØ0001	333	Tatamagouche Well at Balmoral Hotel, Colchester County, N.S.	8
10NS01DP0001	334	Pictou Well at Foots Lake, Pictou County, Nova Scotia.	36
10NS01DP0002	335	Trenton Well on Dutchess Street Pictou County, Nova Scotia .	6
10NS01DP0003	336	Trenton Town Well, Old Maple St. Well, Pictou County, Groundwater Well No. 42	2
10NS01DP0004	337	Pictou Town Garage Well, Pictou County, N.S. Groundwater Well No. 43	2
10NS01DR0001	338	Antigonish West Side Well at Ed's Texaco, Antigonish County.	4
10NS01EA0001	339	Lower Wedgeport Well across from Fire Hall, Yarmouth County, Nova Scotia.	4
10NS01EB0001	340	Newellton Well, Cape Sable Island, Shelburne County, N.S.	9

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
10NS01EC0001	341	Oxbow Motel near Shelburne New Well - 1971-2 Shelburne County, Nova Scotia .	1
10NS01ED0001	342	Kejimkujik NationalPark, Well 4 at Administration Bldg Annapolis County, Nova Scotia	6
10NS01EE0001	343	Mill Village Well, Queens County, Nova Scotia.	6
10NS01EG0001	344	Longboat Inn Well, Western Shore, Lunenburg County, N.S.	16
10NS01EG0002	345	East Chester Dug Well, Lunenburg County, Nova Scotia.	1
10NS01EG0003	346	New Ross Well on Glengary Road Lunenburg County, Nova Scotia.	10
10NS01EJ0001	347	Middle Sackville drilled Well from Mar. Tel and Tel Bldg., Halifax County, Nova Scotia.	22
10NS01EJ0002	348	Halifax Well at Wedgewood Park Subdivision, Nova Scotia.	14
10NS01EK0001	349	Middle Musquodoboit Well near Fire Hall, Halifax County, N.S.	9
10NS01EL0001	350	Lake Charlotte Well, Halifax County, Nova Scotia.	22
10NS01EØ0001	351	Sherbrooke High School Well, Guysborough County, Nova Scotia.	6
10NS01FA0001	352	Port Hood Town Well, Inverness County, Nova Scotia .	32
10NS01FB0002	353	Margaree Valley Airport Well, Inverness County, Nova Scotia.	22
10NS01FC0001	354	Cheticamp Well at Cheticamp Fish Plant, Inverness County, Nova Scotia .	17
10NS01FD0001	355	Black Brook Campsite Well 1 Ingonish, Victoria County, Nova Scotia .	2

TABLE 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
10NS01FD0002	356	Ingonish Beach Well at Youngs Restaurant, Victoria County, Nova Scotia.	4
10NS01FH0001	357	Arichat School Well, Richmond County, Nova Scotia.	18
10NS01FJ0001	358	Sydney Airport Well, Sydney, Cape Breton County, Nova Scotia.	8
11NS01DN0001	359	Spring behind Wentworth Valley Motel, Cumberland County, N. S.	6
33NS01ED0004	360	Precipitation sample collector at Kejimkujik National Park.	54
33NS01DN0001	361	Precipitation sample collector at Jackson, N. S. (since Nov. 1984)	8
40NS01DP0001	362	Pictou Municipal Water Supply Well Water is chlorinated and pumped to System, Pictou County.	1
40NS01DR0001	363	Antigonish Municipal Water Supply Reservoir and river water chlorinated, fluorination unit not operating, Antigonish County.	1
40NS01FA0001	364	Port Hawkesbury Municipal Water Supply, chlorinated water from Landrie Lake, Nova Scotia.	1
40NS01FJ0001	365	Sydney Municipal Water Supply Finished water, Reservoir capacity, 200,000 gallons, Middle Lake, Sydney, Cape Breton County.	1
40NS01FJ0002	366	Glace Bay Municipal Water Supply Finished Water, Source -Sand Lake Reservoir, Cape Breton County.	1
00NS01EE0014	367	Moose Pit Brook at Outflow to Tupper Lake, Queens County.	60
00NS01EE0015	368	Pollock Lake Outflow at First Road West Caledonia, Queens County.	30

Table 3 Cont'd

NAQUADAT #	STATION REFERENCE #	DESCRIPTION	# OF SAMPLES
02NS01DN0004 (52NS01DN0004)	369	River Philip at Port Howe, 600 m SE of Hwy 301 Bridge	3 (3)
01NS01FJ0021 (51NS01FJ0021)	370	Mira River at South Grand Mira, 600 m SE of Indian Point at Center	3 (3)
01NS01FJ0022 (51NS01FJ0022)	371	Mira River, 2 km N. of confluence of Salmon River	3 (3)
01NS01FJ0023 (51NS01FJ0023)	372	Mira River near Sangaree, 600 m WSW of Spencers Island	3 (3)
01NS01FJ0024 (51NS01FJ0024)	373	Mira River at Provincial Park, 400 m ENE of Brickyard Point	3 (3)

a = New stations established in 1985 are listed in Table 4.

b = Refers to the station number used to locate sites on accompanying maps.

c = Number in brackets, used in this column, refers to the number of sediment and fish samples collected and analyzed.

TABLE 4

NEW STATION LISTING[a]

STATION[b]	NAQUADAT #	DESCRIPTION	APPROX. # OF SAMPLES
1	00NS01DG0057	Lantz Water Supply - Shubenacadie River near Intake of Water Treatment Plant	2
2	00NS01DG0058	Enfield Water Supply - Shubenacadie River near intake of Water Treatment Plant	2
3(270)	01NS01FA0001	Port Hawkesbury Water Supply - Landrie Lake from Overflow at Pumping Station Intake	2
4	00NS01DP0011	Stellarton Water Supply - East River near Intake of Treatment Plant	2
5	01NS01FJ0025	Sydney Water Supply - Reservoir near Intake	2
6	01NS01FJ0026	New Waterford Water Supply - Kilkenny Lake near Treatment Plant Intake	2
7(221)	01NS01EA0002	Yarmouth Water Supply - Lake George near Treatment Plant Intake (15 km NE of Yarmouth)	2
8	01NS01EC0006	Shelburne Water Supply - Rodney Lake near Intake to Water Treatment Plant	2
9	01NS01EG0003	Mahone Bay Water Supply - Reservoir at Treatment Plant Intake	2
10	00NS01EJ0037	Dartmouth Water Supply - Lemont Lake (Lake Major) near Intake to Water Treatment Plant (at Hwy 7)	2

a = These stations were established for the Municipal Water Toxic Chemical Survey (1985)

b = The number in brackets in this column refers to the corresponding station reference numbers given in Table 3.

APPENDIX I

FEDERAL LEGISLATIVE ACTS RELATED TO WATER

- British North America Act
- Boundary Waters Treaty Act (1909)
- International River Improvement Act (1955)
- Canada Water Act (1970)
- Northern Inland Waters Act (1972)
- Artic Waters Pollution Prevention Act (1972)
- Fisheries Act (amended in 1977)
- Canada Shipping Act
- Navigable Waters Protection Act
- Department of Environment Act (1971)
- Environmental Contaminants Act (1975)
- National Parks (Canada) Act
- National Harbours Act
- Migratory Birds Convention Act (1916)
- Government Organization Act (1979)

APPENDIX II

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: I.H.D. National Water Quality Monitoring

SUBMITTER I.D.: 0001

PERIOD: April 1965 - Mar 1974

OBJECTIVES: To establish and maintain a water quality and pollution evaluation network in Nova Scotia and to obtain a province-wide baseline inventory of surface water quality.

FIELD SAMPLING: Lay collectors

PARAMETERS ANALYZED: Physical parameters, major ions, nutrients, metals

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYSED	STATION REFERENCE # [a]
00NS01DA0001	55	1
00NS01DB0004	32	2
00NS01DB0005	35	3
00NS01DC0001	107	4
00NS01DD0006	34	15
00NS01DE0001	32	27
00NS01DF0002	34	33
00NS01DG0001	33	36
00NS01DG0002	27	37
00NS01DG0003	27	38
00NS01DH0013	39	50
00NS01DH0023	17	54
00NS01DN0001	53	80
00NS01DN0002	16	81

APPENDIX II Cont'd

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
00NS01DN0010	16	83
00NS01DØ0001	56	86
00NS01DP0001	58	93
00NS01DP0008	28	94
00NS01DP0009	23	95
00NS01DP0010	36	96
00NS01DR0001	54	100
00NS01DR0002	29	101
00NS01EA0001	99	110
00NS01EC0005	28	114
00NS01ED0001	58	115
00NS01ED0002	53	116
00NS01ED0005	20	118
00NS01EE0001	106	126
00NS01EE0002	58	127
00NS01EE0003	57	128
00NS01EF0002	34	130
00NS01EH0001	57	137
00NS01EJ0001	33	138
00NS01EK0002	32	140
00NS01EM0001	30	143
00NS01EM0002	30	144
00NS01EN0002	35	145
00NS01EØ0001	121	147
00NS01EØ0002	34	148
00NS01EQ0001	33	150
00NS01ER0001	58	153
00NS01FA0001	81	154
00NS01FB0001	123	158
00NS01FB0011	34	160
00NS01FC0003	15	165
00NS01FC0004	15	166
00NS01FD0003	15	169
00NS01FD0004	15	166
00NS01FD0005	15	171
00NS01FD0006	15	172
00NS01FD0007	20	173
00NS01FE0001	50	175
00NS01FE0002	21	176
00NS01FF0002	36	177
00NS01FH0001	35	181
00NS01FJ0001	52	185
00NS01FJ0002	32	186
00NS01FJ0005	23	188
01NS01DP0001	34	220
02NS01EF0001	83	289

a = For detailed location of stations refer to Map #1.

APPENDIX III

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: I.H.D. Research Basin Study

SUBMITTER I.D.: 0021

PERIOD: November 1970 - May 1974

OBJECTIVES: To gather data in order to better understand the relationships of the interconnected parameters of the hydrological cycle and their effects on the water balance of basins in a maritime climate.

FIELD SAMPLING: Lay collectors

PARAMETERS ANALYZED: Physical parameters, major ions, nutrients, metals

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYSED	STATION REFERENCE [a] #
00NS01DD0002	44	13
00NS01DD0003	1	14
00NS01DH0012	32	49
00NS01DL0009	40	75
00NS01FB0005	42	159

a = For detailed location of stations refer to Map #2.

APPENDIX IV

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Nova Scotia Surface Water Quality Survey

SUBMITTER I.D.: 0089

PERIOD: Aug. 1971 - Aug. 1972

OBJECTIVE: To determine levels of mercury, cadmium and selected organochlorine pesticides in Nova Scotia surface waters.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Mercury, Cadmium, p,p-DDT, o,p-DDT, p,p-TDE, p,p-DDE, p,p-Methoxychlor, Heptachlor, Heptachlor Epoxide, Endosulfan, (cis) Chlordane, (Trans) Chlordane, γBHC (Lindane), BHC, Aldrin, Endrin, Dieldrin, 2,4-D, 2,4,5-T

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
00NS01DA0001	1	1
00NS01DC0004	1	5
00NS01DC0022	1	6
00NS01DD0017	1	16
00NS01DD0024	1	17
00NS01DD0025	1	18
00NS01DD0026	1	19
00NS01DD0027	1	20
00NS01DE0011	1	28
00NS01DF0006	1	34
00NS01DF0007	1	35
00NS01DG0002	1	37
00NS01DG0019	1	41

APPENDIX IV Cont'd

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
00NS01DH0021	1	52
00NS01DH0022	1	53
00NS01DH0023	1	54
00NS01DJ0001	1	57
00NS01DJ0006	1	58
00NS01DJ0007	1	59
00NS01DJ0008	1	60
00NS01DJ0009	1	61
00NS01DK0002	1	63
00NS01DK0003	1	64
00NS01DK0004	1	65
00NS01DK0005	1	66
00NS01DK0006	1	67
00NS01DL0002	1	71
00NS01DL0003	1	72
00NS01DL0004	1	73
00NS01DM0004	1	78
00NS01DN0002	1	81
00NS01DN0003	1	82
00NS01DØ0003	1	87
00NS01DØ0004	1	88
00NS01DØ0006	1	89
00NS01DØ0007	1	90
00NS01DØ0008	1	91
00NS01DR0001	1	100
00NS01DR0009	1	102
00NS01DS0004	1	104
00NS01DS0005	1	105
00NS01DS0006	1	106
00NS01DS0007	1	107
00NS01EA0001	1	110
00NS01EB0004	1	111
00NS01EB0006	1	112
00NS01EC0004	1	113
00NS01ED0002	1	116
00NS01ED0003	1	117
00NS01ED0008	1	119
00NS01ED0011	1	120
00NS01ED0012	1	121
00NS01ED0015	1	123
00NS01EE0001	1	126
00NS01EE0007	1	129
00NS01EG0003	1	134
00NS01EJ0013	1	139
00NS01EK0002	1	140
00NS01EL0007	1	142
00NS01EM0002	1	144
00NS01EN0012	1	146

APPENDIX IV Cont'd

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
00NS01EP0004	1	149
00NS01EQ0006	1	151
00NS01EQ0010	1	152
00NS01ER0001	1	153
00NS01FA0005	1	155
00NS01FA0006	1	156
00NS01FB0012	1	161
00NS01FC0001	1	163
00NS01FC0002	1	164
00NS01FD0001	1	167
00NS01FD0002	1	168
00NS01FF0003	1	178
00NS01FJ0004	1	187
00NS01FJ0005	1	188
00NS01FJ0007	1	189
00NS01FJ0008	1	190
00NS01FJ0009	1	191
01NS01FJ0002	1	273
02NS01DC0001	1	274
02NS01DG0001	1	279
02NS01DP0001	1	284
02NS01EL0001	1	290
02NS01FH0001	1	294
02NS01FJ0001	1	296
03NS01DN0001	1	297
03NS01EF0001	1	301
03NS01EG0001	1	303
03NS01FA0001	1	306
03NS01FA0002	1	307

NOTE: There was no specific map prepared for this project.

APPENDIX V

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: WQB Municipal Water Survey

SUBMITTER I.D.: 0091

PERIOD: October 1971

OBJECTIVE: To collect information and water quality data on municipal water supplies in Nova Scotia.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Physical parameters, major ions, nutrients and metals

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
01NS01FA0001	1	270
01NS01FJ0001	1	272
05NS01DN0001	1	311
05NS01DR0001	1	312
05NS01FB0001	1	313
05NS01FJ0001	1	314
40NS01DP0001	1	360
40NS01DR0001	1	361
40NS01FA0001	1	362
40NS01FJ0001	1	363
40NS01FJ0002	1	364

NOTE: There was no specific map prepared for this project.

APPENDIX VI

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Nova Scotia Groundwater Study

SUBMITTER I.D.: 0136

PERIOD: May 1972 - September 1973

OBJECTIVE: To gather sufficient water quality data to characterize the principal aquifers of Nova Scotia.

FIELD SAMPLING: N.S. Provincial Government staff and lay collectors.

PARAMETERS ANALYZED: Physical parameters and major ions

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE [a] #
10NS01DC0001	9	317
10NS01DD0001	18	318
10NS01DD0002	15	319
10NS01DD0003	12	320
10NS01DD0004	2	321
10NS01DE0001	14	322
10NS01DB0002	18	315
10NS01DB0003	23	316
10NS01DG0001	18	323
10NS01DG0002	7	324
10NS01DH0001	8	325
10NS01DK0001	12	326
10NS01DL0008	10	327
10NS01DL0010	3	328
10NS01DL0011	3	329
10NS01DL0012	2	330

APPENDIX VI Cont'd

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
10NS01DN0001	24	331
10NS01DN0002	6	332
10NS01DØ0001	8	333
10NS01DP0001	2	334
10NS01DP0002	6	335
10NS01DP0003	2	336
10NS01DP0004	2	337
10NS01DR0001	4	338
10NS01EA0001	4	339
10NS01EB0001	9	340
10NS01EC0001	1	341
10NS01ED0001	6	342
10NS01EE0001	6	343
10NS01EG0001	16	344
10NS01EG0002	1	345
10NS01EG0003	10	346
10NS01EJ0001	22	347
10NS01EJ0002	14	348
10NS01EK0001	9	349
10NS01EL0001	22	350
10NS01EØ0001	6	351
10NS01FA0001	32	352
10NS01FB0002	22	353
10NS01FC0001	17	354
10NS01FD0001	2	355
10NS01FD0002	4	356
10NS01FH0001	18	357
10NS01FJ0001	8	358
11NS01DN0001	6	359

a = For detailed location of stations refer to Map #3.

APPENDIX VII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: WQB National Water Quality Monitoring

SUBMITTER I.D.: 0003

PERIOD: April 1974 to July 1978

OBJECTIVES: To collect, analyze and store background surface water quality data for later interpretation.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Physical parameters, major ions, nutrients, and metals

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE [a] #
00NS01DA0001	2	1
00NS01DB0004	2	2
00NS01DB0005	2	3
00NS01DC0001	2	4
00NS01DC0028	23	7
00NS01DC0083	14	8
00NS01DC0084	23	9
00NS01DD0002	19	13
00NS01DD0006	6	15
00NS01DD0032	6	21
00NS01DE0001	3	27
00NS01DE0012	15	29
00NS01DF0002	2	33
00NS01DG0001	21	36
00NS01DG0002	21	37
00NS01DG0003	2	38
00NS01DG0011	13	40

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
00NS01DH0012	19	49
00NS01DH0013	2	50
00NS01DH0020	16	51
00NS01DH0023	2	54
00NS01DH0027	19	55
00NS01DL0009	18	75
00NS01DL0010	23	76
00NS01DN0001	7	80
00NS01DN0002	21	81
00NS01DN0010	20	83
00NS01DØ0001	2	86
00NS01DP0001	19	93
00NS01DP0008	19	94
00NS01DP0009	2	95
00NS01DP0010	2	96
00NS01DR0001	2	100
00NS01DR0002	2	101
00NS01EA0001	2	110
00NS01EC0005	2	114
00NS01ED0001	19	115
00NS01ED0002	2	116
00NS01ED0005	25	118
00NS01ED0020	23	124
00NS01EE0001	25	126
00NS01EE0002	2	127
00NS01EE0003	25	128
00NS01EF0002	2	130
00NS01EF0003	23	131
00NS01EF0013	23	132
00NS01EF0014	20	133
00NS01EG0005	7	135
00NS01EG0006	7	136
00NS01EH0001	2	137
00NS01EJ0001	18	138
00NS01EK0002	2	140
00NS01EK0007	7	141
00NS01EM0001	2	143
00NS01EM0002	18	144
00NS01EN0002	6	145
00NS01EØ0001	15	147
00NS01EØ0002	2	148
00NS01EQ0001	2	150
00NS01ER0001	2	153
00NS01FA0001	2	154
00NS01FB0001	33	158
00NS01FB0005	28	159
00NS01FB0011	33	160
00NS01FC0003	2	165

APPENDIX VII Cont'd

NAQUADAT #	APPROX. # OF SAMPLES ANALYSED	STATION REFERENCE #
00NS01FC0004	27	166
00NS01FD0003	26	169
00NS01FD0004	2	170
00NS01FD0005	2	171
00NS01FD0006	2	172
00NS01FD0007	30	173
00NS01FD0008	22	174
00NS01FE0001	30	175
00NS01FE0002	2	176
00NS01FF0002	1	177
00NS01FH0001	9	181
00NS01FJ0001	2	185
00NS01FJ0002	2	186
00NS01FJ0005	2	188
01NS01DE0001	20	204
01NS01DP0001	17	220
01NS01ED0032	13	255
02NS01DC0001	15	274
02NS01DC0002	9	275
02NS01DD0002	6	277
02NS01DE0001	4	278
02NS01DG0001	15	279
02NS01DG0002	18	280
02NS01DG0003	18	281
02NS01DH0002	14	282
02NS01DL0001	3	283
02NS01DP0002	5	285
02NS01DP0003	4	286
02NS01ED0001	5	288
02NS01EF0001	10	289
02NS01FB0001	15	291
02NS01FG0001	7	293
02NS01FH0002	6	295
03NS01FA0003	12	308

a = For detailed location of stations refer to Map #4.

APPENDIX VIII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Atlantic Region Overview Network

SUBMITTER I.D.: 0099

PERIOD: July 1978 to present

OBJECTIVES: To collect and analyze aquatic environmental quality data in order to maintain a Regional inventory of baseline information for:

(i) the periodic assessment of the quality of the aquatic environment;

(ii) the determination of gross trends in the aquatic environment; and

(iii) the fulfillment of our commitment to supply international agencies with ocean input data.

FIELD SAMPLING: Water Resources Branch staff

PARAMETERS ANALYZED: Physical parameters, major ions, nutrients, and metals

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE[a] #
00NS01DC0001	42	4
00NS01DG0008	42	39
00NS01DN0001	12	80
00NS01EE0001	12	126
00NS01EØ0001	12	147

APPENDIX VIII Cont'd

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
OONSO1FB0001	42	158
OONSO1FJ0001	42	185

a = For detailed location of stations refer to Map #5.

APPENDIX IX

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Pollutant Specific Surveys

SUBMITTER I.D.: 0211

PERIOD: July 1979 - October 1982

OBJECTIVES: To locate, characterize and quantify the extent of contamination by toxic substances in the aquatic environment.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED:

Water -
- Pentachlorophenols
- Triaryl Phosphates
- Chlorobenzenes
- Phthalate Esters
- Polyaromatic Hydrocarbons
- Lead
- Mirex
- Arsenic
- Carbofuran

Bottom Sediments

- Chlorobenzenes
- Polyaromatic Hydrocarbons
- Mercury
- Cadmium
- PCB
- Mirex
- Carbofuran
- Lead
- 2,4-D
- 2,4,5-T
- MCPA
- Atrazine
- Guthion
- Endrin

NOTE: Some of these parameters were not analyzed every year.

APPENDIX IX Cont'd

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE [a] #
00NS01DC0001	6 (water)	1
00NS01DC0004	6 (water)	5
00NS01DC0089	6 (water)	10
00NS01DC0090	6 (water)	11
00NS01DG0008	6 (water)	39
00NS01DL0007	3 (water)	74
00NS01DN0002	6 (water)	81
00NS01EE0001	6 (water)	126
00NS01EØ0001	6 (water)	147
00NS01FB0001	6 (water)	158
00NS01FJ0001	6 (water)	185
00NS01FJ0020	6 (water)	193
50NS01FJ0020	6 (sediment)	
01NS01DG0031	3 (water)	214
51NS01DG0031	3 (sediment)	
01NS01DG0032	3 (water)	215
51NS01DG0032	3 (sediment)	
01NS01ED0049	3 (water)	259
51NS01ED0049	3 (sediment)	
01NS01ED0050	3 (water)	260
51NS01ED0050	3 (sediment)	
01NS01EE0003	3 (water)	261
51NS01EE0003	3 (sediment)	
01NS01FB0002	6 (water)	271
51NS01FB0002	6 (sediment)	
02NS01DC0001	3 (water)	274
52NS01DC0001	3 (sediment)	
02NS01DC0004	6 (water)	276
52NS01DC0004	6 (sediment)	
02NS01DH0002	3 (water)	282
52NS01DH0002	3 (sediment)	
02NS01DP0004	3 (water)	287
52NS01DP0004	3 (sediment)	
02NS01FF0001	3 (water)	292
52NS01FF0001	3 (sediment)	
03NS01DP0001	3 (water)	298
53NS01DP0001	3 (sediment)	
03NS01DP0003	3 (water)	299
53NS01DP0003	3 (sediment)	
03NS01ED0001	3 (water)	300
53NS01ED0001	3 (sediment)	

APPENDIX IX Cont'd

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
03NS01EF0002	3 (water)	302
53NS01EF0002	3 (sediment)	
03NS01EJ0015	6 (water)	304
53NS01EJ0015	6 (sediment)	
03NS01ER0001	6 (water)	305
53NS01ER0001	6 (sediment)	
03NS01FA0004	3 (water)	309
53NS01FA0004	3 (sediment)	
03NS01FJ0001	6 (water)	310
53NS01FJ0001	6 (sediment)	
00NS01DC0084	3 (water)	9
50NS01DC0084	3 (sediment)	
00NS01DD0036	3 (water)	23
50NS01DD0036	3 (sediment)	
00NS01DD0037	3 (water)	24
50NS01DD0037	3 (sediment)	
02NS01DN0004	3 (water)	369
52NS01DN0004	3 (sediment)	
01NS01FJ0021	3 (water)	370
51NS01FJ0021	3 (sediment)	
01NS01FJ0022	3 (water)	371
51NS01FJ0022	3 (sediment)	
01NS01FJ0023	3 (water)	372
51NS01FJ0023	3 (sediment)	
01NS01FJ0024	3 (water)	373
51NS01FJ0024	3 (sediment)	

a = For detailed location of stations refer to Map #6.

APPENDIX X

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Acid Rain Sensitivity Survey

SUBMITTER I.D.: 0212

PERIOD: Sept. 1979 to December 1980

OBJECTIVES: To collect surface water data from areas in Nova Scotia for which data gaps have been identified. These data were employed for the preparation of acid rain sensitivity maps.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Field measurements, physical parameters, major ions, iron, manganese, zinc and aluminum

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
01NS01DG0026	1	212
00NS01DF0002	1	33
00NS01DD0035	1	22
00NS01DG0049	1	42
00NS01DE0013	1	30
00NS01DE0014	1	31
01NS01DE0001	1	27
00NS01DE0015	1	32
00NS01EG0005	1	135
01NS01EG0001	1	262
01NS01DE0002	1	205
01NS01DE0003	1	206
01NS01EH0001	1	263
01NS01EH0005	1	265

APPENDIX X Cont'd

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
01NS01EJ0003	1	266
01NS01EJ0004	1	267
01NS01DE0004	1	207
01NS01EJ0005	1	268
01NS01EH0002	1	264
00NS01DG0050	1	43
01NS01DG0027	1	213
00NS01DM0006	1	79
00NS01DK0008	1	69
00NS01DM0004	1	78
00NS01FH0003	1	182
00NS01DN0014	1	85
00NS01DN0013	1	84
00NS01DH0028	1	56
00NS01DJ0001	1	57
00NS01DJ0006	1	58
00NS01DJ0010	1	62
00NS01DK0007	1	68
00NS01DK0009	1	70
00NS01DL0004	1	73
00NS01DL0012	1	77
00NS01DØ0003	1	87
00NS01DØ0008	1	91
00NS01DQ0001	1	97
00NS01DØ0009	1	92
00NS01DQ0002	1	98
00NS01DQ0003	1	99
00NS01DR0022	1	103
00NS01DS0006	1	106
00NS01DS0008	1	108
00NS01DS0009	1	109
00NS01FA0007	1	157
00NS01FB0013	1	162
00NS01FC0004	1	166
00NS01FG0003	1	179
00NS01FG0004	1	180
00NS01FH0004	1	183
00NS01FH0005	1	184
00NS01FJ0015	1	192
01NS01ER0001	1	269

NOTE: There was no specific map prepared for this project.

APPENDIX XI

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Acid Rain Baseline Sampling Network

SUBMITTER I.D.: 0099

PERIOD: April 1980 to present

OBJECTIVE: To maintain a network of benchmark surface water stations in selected watersheds in order to identify temporal trends of acid sensitive parameters.

FIELD SAMPLING: Water Resources Branch staff

PARAMETERS ANALYZED: Field measurements, physical parameters, major ions, iron, manganese, zinc and aluminum

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE[a] #
00NS01EE0001	63	126
00NS01EC0005	63	114
00NS01EA0001	63	110
00NS01EN0002	63	145
00NS01EF0002	63	130
00NS01EØ0001	63	147
00NS01ER0001	63	153
00NS01DE0001	63	27
00NS01DL0009	63	75
00NS01DN0001	63	80
00NS01DA0001	63	1
00NS01ED0005	63	118

a = For detailed location of stations refer to Map #7.

APPENDIX XII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Kejimkujik Basin LRTAP Survey

SUBMITTER I.D.: 0087

PERIOD: 1980 to present

OBJECTIVES: To study temporal variations of parameters affected by acid precipitation in a brown-water basin in Nova Scotia.

FIELD SAMPLING: Lay collectors

PARAMETERS ANALYZED: Field measurements, physical parameters, major ions, nutrients, iron, manganese and aluminum

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE [a] #
00NS01ED0005	750	118
00NS01EE0014	60	367
00NS01EE0015	30	368
00NS01ED0030	60	125

a = For detailed location of stations refer to Map #8.

APPENDIX XIII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Organics in Atmospheric Precipitation

SUBMITTER I. D.: 0162

PERIOD: October 1980 to present

OBJECTIVE: Obtain data on the quantity of atmospheric contributions of toxic chemicals to the inland waters of Atlantic Canada.

FIELD SAMPLING: Samplers maintained by the Federal Department of Fisheries & Oceans or contracted out.

PARAMETERS ANALYZED: Organochlorine pesticide and PCB's.

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE [a] #
33NS01ED0004	54	365
33NS01DN0001	8	366

a = For detailed location of stations refer to Map #9.

APPENDIX XIV

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Shubenacadie Basin Study

SUBMITTER I.D.: 0225

PERIOD: 1983 - 1984

OBJECTIVES: To assess levels of toxic metals in the Shubenacadie Lake system and compare these levels with those from previous studies.

FIELD SAMPLING: Lay collectors/
Water Quality Branch staff

PARAMETERS ANALYZED: Field parameters, physical parameters, major ions, nutrients, metals

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE [a] #
00NS01DG0052	6	44
00NS01DG0053	6	45
00NS01DG0054	6	46
00NS01DG0055	6	47
00NS01DG0056	6	48
01NS01DG0004	6	208
01NS01DG0007	6	209
01NS01DG0009	6	210
01NS01DG0013	6	211
01NS01DG0053	6	216
01NS01DG0063	6	217
01NS01DG0064	6	218
01NS01DG0065	6	219

a = For detailed location of stations refer to Map #10.

APPENDIX XV

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: LRTAP Lakes Monitoring

SUBMITTER I.D.: 0244

PERIOD: 1983 to present

OBJECTIVES: Detect trends in acid precipitation parameters in Nova Scotia Lakes.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: Field measurements, physical parameters, major ions, nutrients, and metals

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE [a] #
01NS01ED0001	5	232
01NS01ED0002	5	233
01NS01ED0003	5	234
01NS01ED0004	5	235
01NS01ED0005	5	236
01NS01ED0006	5	237
01NS01ED0007	5	238
01NS01ED0008	5	239
01NS01ED0011	5	240
01NS01ED0013	5	241
01NS01ED0014	5	242
01NS01ED0015	5	243
01NS01ED0016	5	244
01NS01ED0017	5	245
01NS01ED0019	5	246
01NS01ED0020	5	247
01NS01ED0021	5	248

APPENDIX XV Cont'd

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
01NS01ED0022	5	249
01NS01ED0025	5	250
01NS01ED0027	5	251
01NS01ED0028	5	252
01NS01ED0029	5	253
01NS01ED0030	5	254
01NS01ED0043	5	256
01NS01ED0047	5	257
01NS01ED0048	5	258
01NS01EA0010	5	225
01NS01EA0011	5	226
01NS01EA0013	5	227
01NS01EA0014	5	228
01NS01EA0016	5	229
01NS01EA0002	5	221
01NS01EA0004	5	222
01NS01EA0005	5	223
01NS01EA0009	5	224
01NS01DA0002	5	194
01NS01DA0003	5	195
01NS01DA0004	5	196
01NS01DA0005	5	197
01NS01DA0006	5	198
01NS01DA0007	5	199
01NS01EA0019	5	230
01NS01EA0020	5	231

a = For detailed location of stations refer to Map #11.

APPENDIX XVI

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Toxic Chemical Survey (Annapolis Valley)

SUBMITTER I. D.: 0211

PERIOD: 1984

OBJECTIVES: To locate, characterize and quantify the extent of contamination by toxic substances in the aquatic environment, thereby providing information which can be used for the planning, development and implementation of preventive measures, controls, and clean up. Specifically, to screen for specified environmental contaminants in the Annapolis Valley.

FIELD SAMPLING: Water Quality Branch staff

PARAMETERS ANALYZED: a) Water:

p,p-DDT
o,p-DDT
p,p-DDD
p,p-DDE
Methoxychlor
Heptachlor
Heptachlor Epoxide
Alpha Endosulfan
Beta Endosulfan
Alpha (cis) Chlordane
Gamma (Trans) Chlordane
Lindane (Gamma BHC)
Alpha BHC
Mirex
Aldrin

Endrin
HEOD (Dieldrin)
Total Arochlor (PCB)
2,4-D
2,4,5-T
Atrazine
Carbofuran
Carbaryl
Phorate
Guthion
Malathion
Cadmium
Aluminum
Zinc
Copper
Lead

b) Bottom Sediments:

p,p-DDT
o,p-DDT
p,p-DDD
p,p-DDE
Methoxychlor
Heptachlor
Heptachlor Epoxide
Alpha Endosulfan
Beta Endosulfan
Alpha (cis) Chlordane
Gamma (Trans) Chlordane
Lindane (Gamma BHC)
Alpha BHC
Mirex
Aldrin
Endrin
Total Arochlor (PCB)
2,4-D
2,4,5-T
Atrazine
Carbofuran
Carbaryl
Phorate
Guthion
Malathion

APPENDIX XVI Cont'd

c) Fish:

p,p-DDT
o,p-DDT
p,sp-DDD
p,p-DDE
Methoxychlor
Heptachlor
Heptachlor Epoxide
Alpha Endosulfan
Beta Endosulfan
Alpha (cis) Chlordane
Gamma (Trans) Chlordane
Lindane (Gamma BHC)
Alpha BHC
Aldrin
Endrin
Total Arochlor (PCB)
2,4-D
2,4,5-T
Atrazine
Metribuzine
Carbofuran
Aldicarb
Phorate
Guthion
Malathion
Carbaryl

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE [a] #
02NS01DC0004	3 (water)	276
52NS01DC0004	9 (sediment)	
01NS01DC0008	3 (water)	200
51NS01DC0008	9 (sediment)	
91NS01DC0008	2 (fish)	
01NS01DC0009	3 (water)	201
51NS01DC0009	9 (sediment)	
91NS01DC0009	3 (fish)	
01NS01DC0010	3 (water)	202
51NS01DC0010	9 (sediment)	
00NS01DC0084	3 (water)	9
00NS01DC0091	3 (water)	12
50NS01DC0091	9 (sediment)	

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE #
01NS01DD0006	3 (water)	
51NS01DD0006	9 (sediment)	203
91NS01DD0006	2 (fish)	
00NS01DD0036	3 (water)	23
50NS01DD0036	6 (sediment)	
00NS01DD0037	3 (water)	24
50NS01DD0037	9 (sediment)	
00NS01DD0038	3 (water)	25
50NS01DD0038	9 (sediment)	
00NS01DD0039	3 (water)	26
50NS01DD0039	9 (sediment)	

a = For detailed location of stations refer to Map #12.

APPENDIX XVII

PROJECT DESCRIPTION

WATER QUALITY BRANCH

ATLANTIC REGION

PROJECT TITLE: Municipal Water Toxic Chemical Survey

SUBMITTER I.D.: 0211

PERIOD: Started in May 1985

OBJECTIVES: To screen for specific environmental contaminants in Raw Domestic Water Sources in Nova Scotia, and collect general water quality data.

FIELD SAMPLING: Done twice a year (spring and fall) by a team composed of one federal and one provincial employee.

PARAMETERS ANALYZED: Physical parameters, major ions, nutrients, aluminum, chromium, manganese, iron, nickel, copper, zinc, arsenic, cadmium, mercury, lead, organochlorine pesticides, PCBs, chlorinated benzenes, polyaromatic hydrocarbons, organophosphate pesticides, chlorinated phenols, aldicarb and carbaryl.

STATIONS SAMPLED:

NAQUADAT #	APPROX. # OF SAMPLES ANALYZED	STATION REFERENCE[a] #
00NS01DG0057	2	1
00NS01DG0058	2	2
01NS01FA0001	2	3
00NS01DP0011	2	4
01NS01FJ0025	2	5
01NS01FJ0026	2	6
01NS01EA0002	2	7
01NS01EC0006	2	8
01NS01EG0003	2	9
00NS01EJ0037	2	10

a = For detailed location of stations refer to Map #13.

APPENDIX XVIII

LIST OF REPORTS, PUBLICATIONS AND/OR PRESENTATIONS

1 - "Scope, Procedure and Interpretation of Survey Studies"; J.F.J. Thomas, Industrial Water Resources of Canada, Water Survey Report No. 1 (1953).

2 - "Surface Water Quality in Canada - An Overview"; Water Quality Branch, Inland Waters Directorate, Ottawa, Ont. (1977).

3 - "Shubenacadie-Stewiacke River Basin Data Summaries for the Four Management Areas"; J. Witteman, J. McCabe and R. Bingham, WQB-AR-78-3, Water Quality Branch, Atlantic Region, Moncton, N. B. (1978).

4 - "Shubenacadie-Stewiacke River Basin Water Quality Data, Vol. I - Management Area 1"; J. McCabe, J. Witteman and R. Bingham, WQB-AR-78-4, Water Quality Branch, Atlantic Region, Moncton, N. B. (1978).

5 - "Shubenacadie-Stewiacke River Basin Water Quality Data, Vol. 2, Management Area 2"; J. McCabe, J. Witteman and R. Bingham, WQB-AR-78-4, Water Quality Branch, Atlantic Region, Moncton, N. B. (1978).

APPENDIX XVIII cont'd

6 - "Shubenacadie-Stewiacke River Basin Water Quality Data, Vol. 3 - Management Area 2"; J. McCabe, J. Witteman and R. Bingham, WQB-AR-78-4, Water Quality Branch, Atlantic Region, Moncton, N. B. (1978).

7 - "Shubenacadie-Stewiacke River Basin Water Quality Data, Vol. 4 - Management Area 2"; J. Witteman, J. McCabe and R. Bingham, WQB-AR-78-4, Water Quality Branch, Atlantic Region, Moncton, N. B. (1978).

8 - "Shubenacadie-Stewiacke River Basin Water Quality Data, Vol. 5 - Management Area 3"; J. McCabe, J. Witteman and R. Bingham, WQB-AR-78-4, Water Quality Branch, Atlantic Region, Moncton, N. B. (1978).

9 - "Shubenacadie-Stewiacke River Basin Water Quality Data, Vol. 6 - Management Area 4"; J. McCabe, J. Witteman and R. Bingham, WQB-AR-78-4, Water Quality Branch, Atlantic Region, Moncton, N. B. (1978).

10 - "Shubenacadie-Stewiacke River Basin Comparisons of Water Quality Data to Water Quality Objectives"; J. McCabe, J. Witteman, P. Belliveau and R. Bingham, WQB-AR-78-5, Water Quality Branch, Atlantic Region, Moncton, N. B. (1978).

APPENDIX XVIII Cont'd

11 - "Proposed Surface Water Quality Objectives and Groundwater Quality Objectives for the Shubenacadie-Stewiacke River Basin"; P.E. Belliveau et al., Technical Report #10, Dec. (1978).

12 - "Acid Precipitation Sensitivity of Canada's Atlantic Provinces"; T.A. Clair, J.P. Witteman and S. Whitlow, presented at the American Society of Limnology and Oceanography Conference, Knoxville, Tennessee, Jan. (1980).

13 - "Regeneration of Lake Sediment Aluminum and Phosphorus at Varying pH's"; T.A. Clair and G. Norton, Internal Report, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B. Aug. 1 (1980).

14 - "Water Quality Data - Nova Scotia: 1965-1978"; Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B. and Ottawa, Ont. (1980).

15 - "Water Quality Branch Activities in Nova Scotia: 1965-1980"; P.E. Belliveau and H.S. Bailey, IWD-AR-WQB-81-16, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B., Sept. (1981).

APPENDIX XVIII cont'd

16 - "Acid Precipitation Sensitivity of Canada's Atlantic Provinces"; T.A. Clair, J.P. Witteman and S.H. Whitlow, IWD Technical Bulletin No. 124, Water Quality Branch, Atlantic Region, Moncton, N. B. (1982).

17 - "Data Summary Report for Trace Organics in Precipitation for 1980-81: Kejimkujik Park, N.S. and Ellerslie, P.E.I."; G.L. Brun, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B., May 27 (1982).

18 - "Characterization of Three Lake Basins Sensitive to Acid Precipitation in Central Nova Scotia (June 1979 to May 1980)"; J. Kerekes, G. Howell, S. Beauchamp and T. Pollock, Int. Revue ges. Hydrobiol. 67, 5, pp. 679-694 (1982).

19 - "Trends in pH, Calcium and Sulfate of Rivers in Atlantic Canada"; T.A. Clair and P.H. Whitfield, Limnol. Oceanogr. 28(1), 160 (1983).

20 - "Survey of Toxic Inorganic Constituents in the Atlantic Region's Aquatic Environment (1979-81)"; P.E. Belliveau and H.S. Bailey, IWD-AR-WQB-83-40, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B., March 15 (1983).

APPENDIX XVIII cont'd

21 - "Data Summary Report for Trace Organic Contaminants in Precipitation Collected at Kejimkujik National Park, N.S. and Ellerslie, P.E.I. during 1982"; G.L. Brun, IWD-AR-WQB-83-44, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B., May 12 (1983).

22 - "Problems Associated with Sulphate Determination in Coloured, Humic Waters in Kejimkujik National Park, N.S."; J. Kerekes, G. Howell and T. Pollock, Verh. Internat. Verein. Limnol., 22, 1811-1817, December (1984).

23 - "Relationships Between Colour and Sulphate Measurements"; G. Howell and J. Kerekes, Presented at the Kejimkujik National Park Workshop, Dalhousie University, Halifax, N. S., April 26 (1983).

24 - "Ionic Export from the Watersheds"; J. Kerekes and G. Howell, Presented at the Kejimkujik National Park Workshop, Dalhousie University, Halifax, N.S., April 26 (1983).

APPENDIX XVIII cont'd

25 - "Determination of Sulphate in Atlantic Canada Surface Waters"; T. Pollock, Presented at the Kejimkujik National Park Workshop, Dalhousie University, Halifax, N.S., April 26 (1983).

26 - "Survey of Toxic Organic Constituents in the Atlantic Region's Aquatic Environment (1979-81)"; H.S. Bailey and G.D. Howell, IWD-AR-WQB-83-48, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B., October 19 (1983).

27 - "Survey of Toxic Constituents in the Atlantic Region's Aquatic Environment - 1982"; H.S. Bailey, IWD-AR-WQB-84-55, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B. Feb. (1984).

28 - Data Summary Report for Trace Organic Contaminants in Precipitation Collected at Kejimkujik National Park, N.S., and Ellerslie, P.E.I. during 1983"; G.L. Brun, IWD-AR-WQB-84-63, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N.B., May 8 (1984).

APPENDIX XVIII cont'd

29 - "Aluminum Speciation in Waters of Nova Scotia and their Impact on WQB Analytical and Fields Methods"; T.A. Clair and V. Komadina, IWD-AR-WQB-84-69, Water Quality Branch, Inland Waters Directorate, Atlantic Region, Moncton, N. B., October 1 (1984).

30 - "The Impact of Past Gold Mining Activities on the Shubenacadie River Headwaters Ecosystem"; Edited by A. Mudroch and T.A. Clair, IWD-AR-WQB-85-81, Joint Federal and Provincial Report, Inland Waters Directorate, Moncton, N. B. (1985).

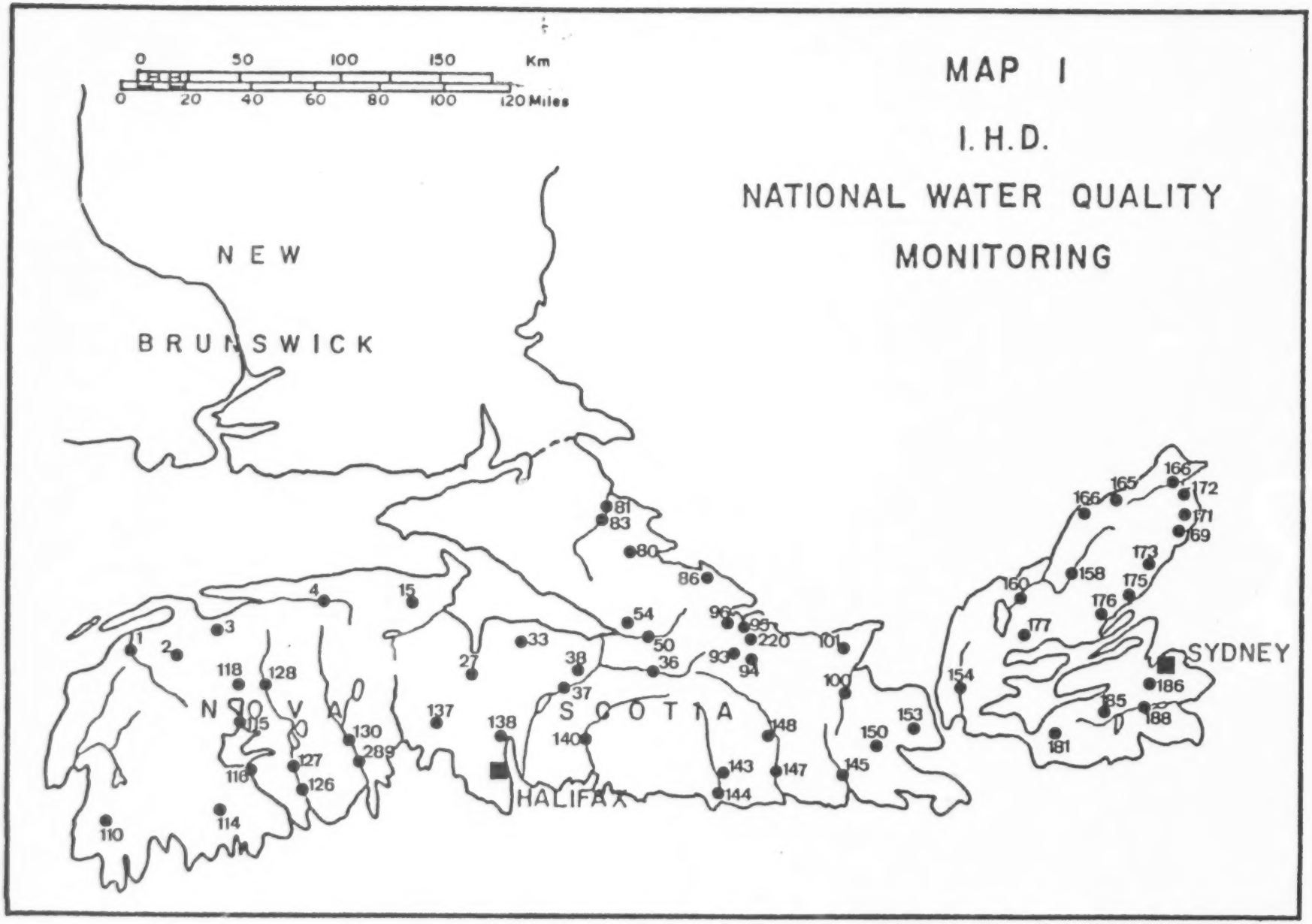
31 - "Field Quality Control/Quality Assurance Program Results of 1984/85 Sequential Triplicate Sampling"; R.A. Arseneault and G.D. Howell, IWD-AR-WQB-85-78, Water Quality Branch, Inland Waters Directorate, Moncton, N.B., March (1985).

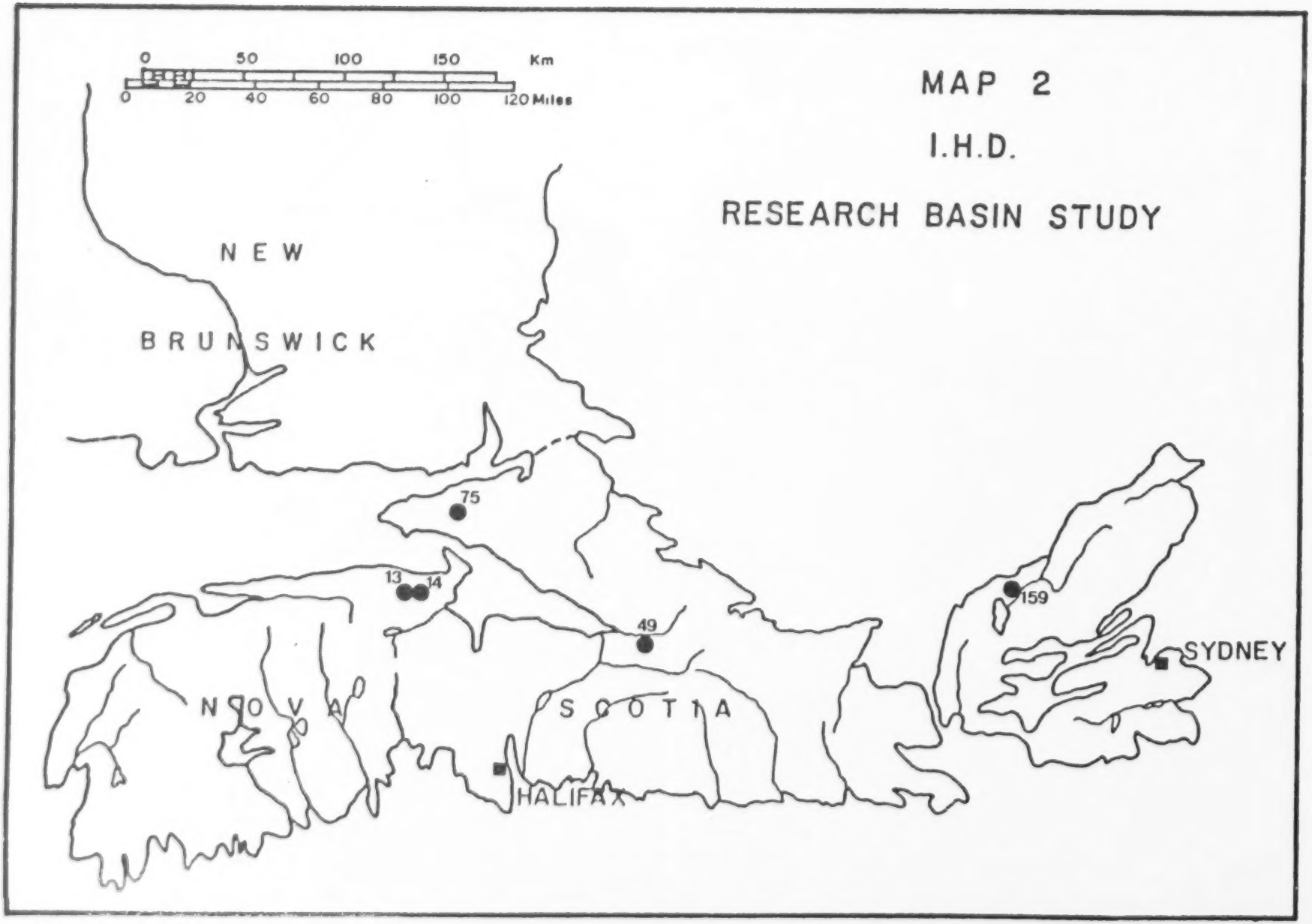
32 - "Chemical and Physical Charactertistics of Snow in the Kejimkujik National Park Area in 1983-84"; T.A. Clair, IWD-AR-WQB-85-86, Water Quality Branch, Inland Waters Directorate, Moncton, N. B. (1985).

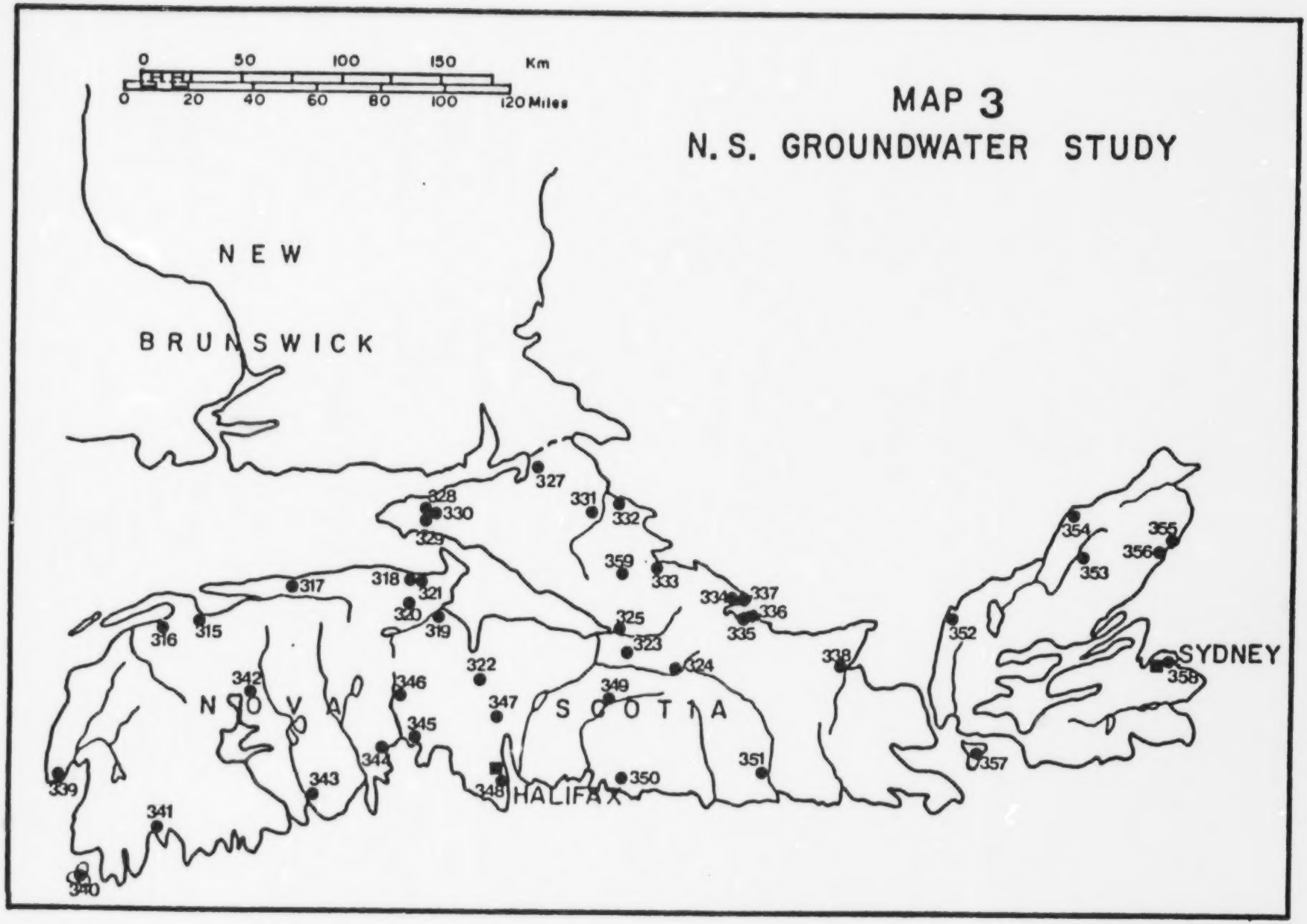
APPENDIX XVII cont'd

33 - "Pattern of Water Chemistry of four Drainage Basins in Central Nova Scotia"; B. Freedman, C. Stewart and U. Prager, IWD-AR-WQB-85-93, Intitute for Resource and Environmental Studies and Department of Biology, Dalhousie University, Prepared for the Water Quality Branch, Moncton, N. B. (1985).

34 - "1984 WQB Study of Pesticides in the Annapolis Valley"; T.A. Clair and H.S. Bailey, Water Quality Branch, Inland Waters Directorate, Moncton, N. B., Technical Bulletin Series, in press.


MAP I
I.H.D.
NATIONAL WATER QUALITY
MONITORING
0 50 100 150 Km
0 20 40 60 80 100 120 Miles
NEW
BRUNSWICK
NOVA SCOTIA
HALIFAX
SYDNEY
1 2 3 4 15 27 33 38 36 37 50 54 81 83 80 86 93 94 95 96 220 101 100 118 128 115 130 289 127 126 116 110 114 137 138 140 143 144 147 145 148 150 153 154 158 160 165 166 166 172 171 169 173 175 176 177 186 185 188 181


0 50 100 150 Km
0 20 40 60 80 100 120 Miles
MAP 2
I.H.D.
RESEARCH BASIN STUDY
NEW
BRUNSWICK
75
13
14
49
159
SYDNEY
NOVA
SCOTIA
HALIFAX


0 50 100 150 Km
0 20 40 60 80 100 120 Miles
MAP 3
N. S. GROUNDWATER STUDY
NEW
BRUNSWICK
NOVA SCOTIA
HALIFAX
SYDNEY
327
328
330
329
331
332
359
333
317
318
321
320
319
315
316
325
323
322
324
334
337
336
335
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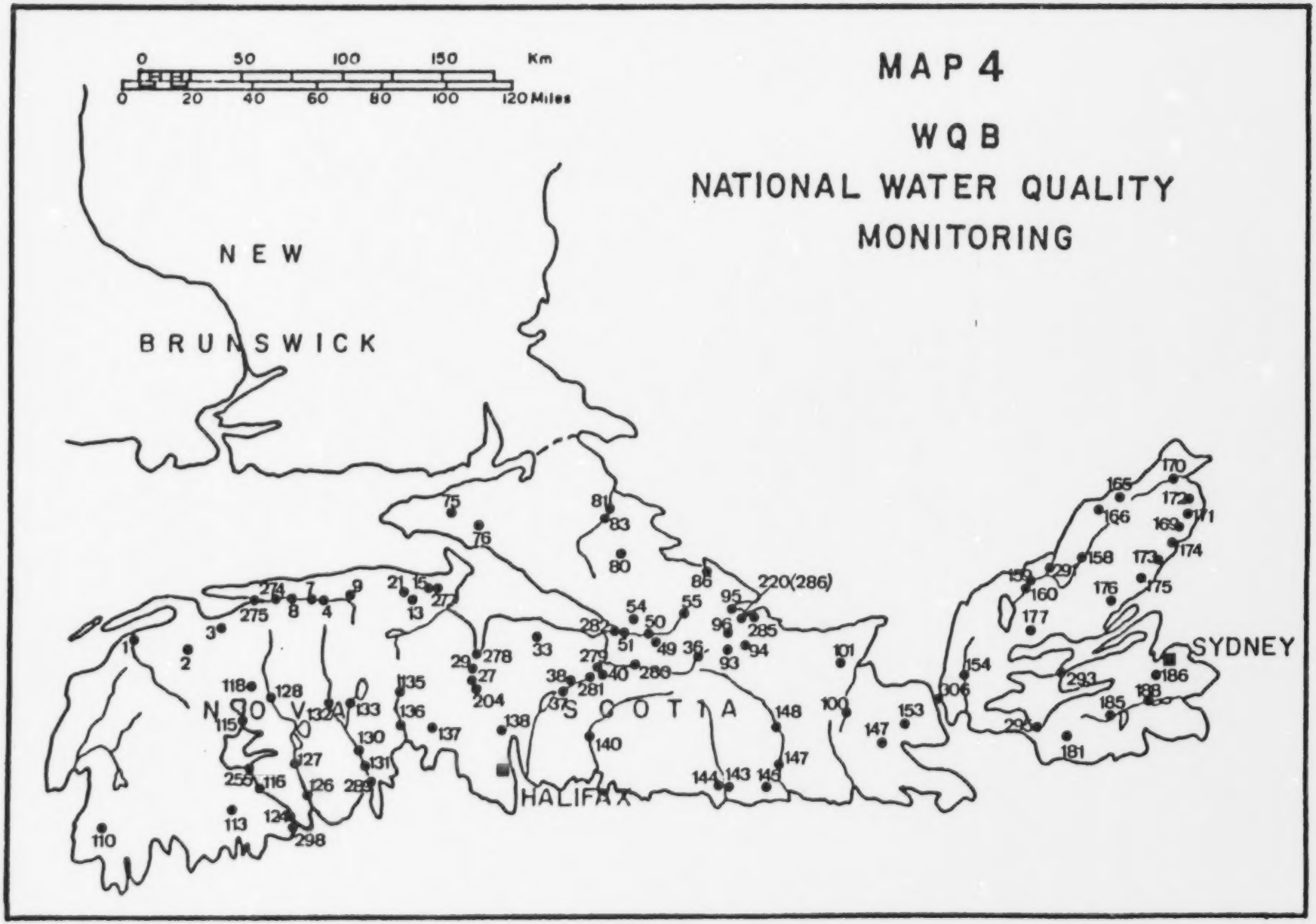
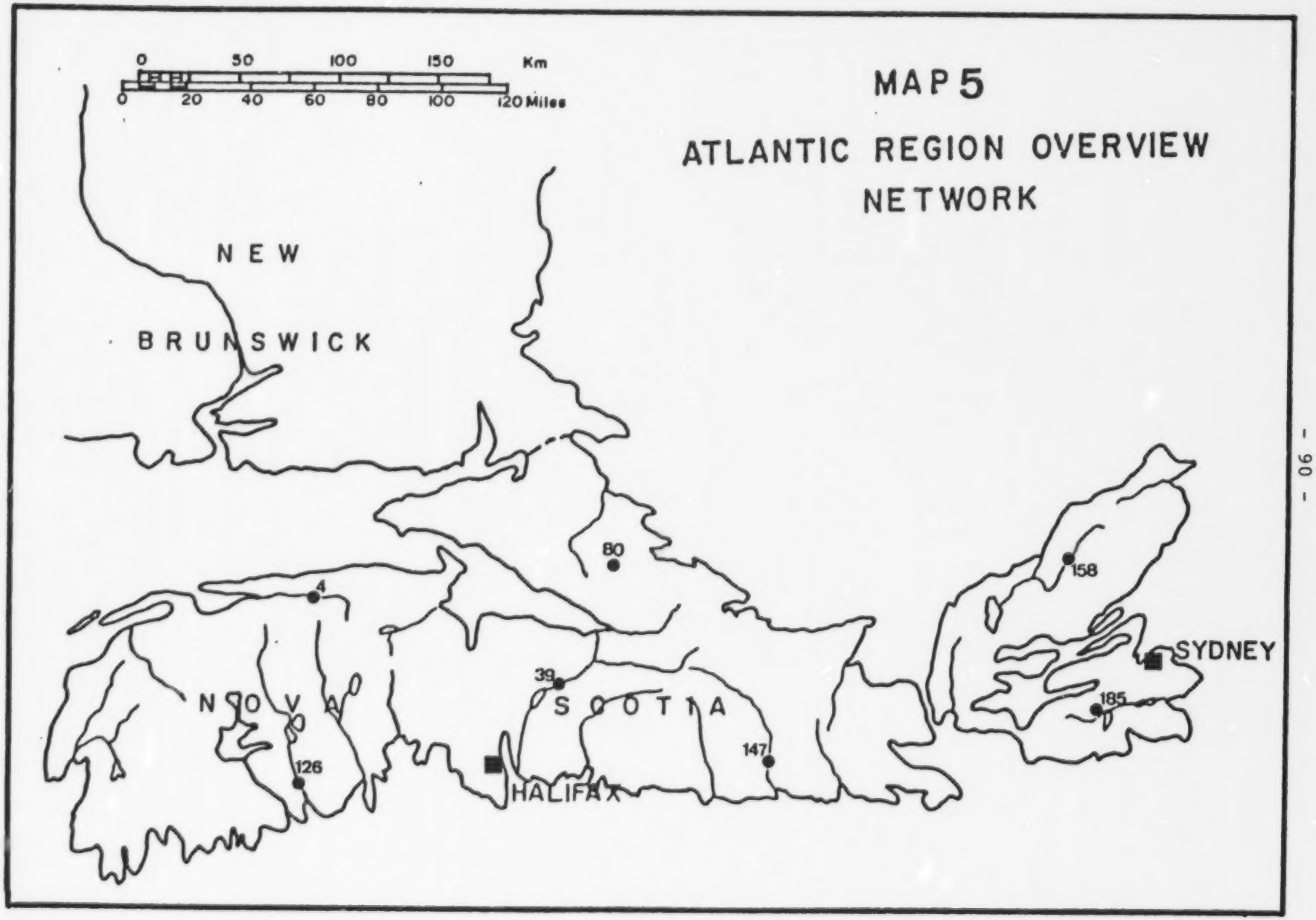
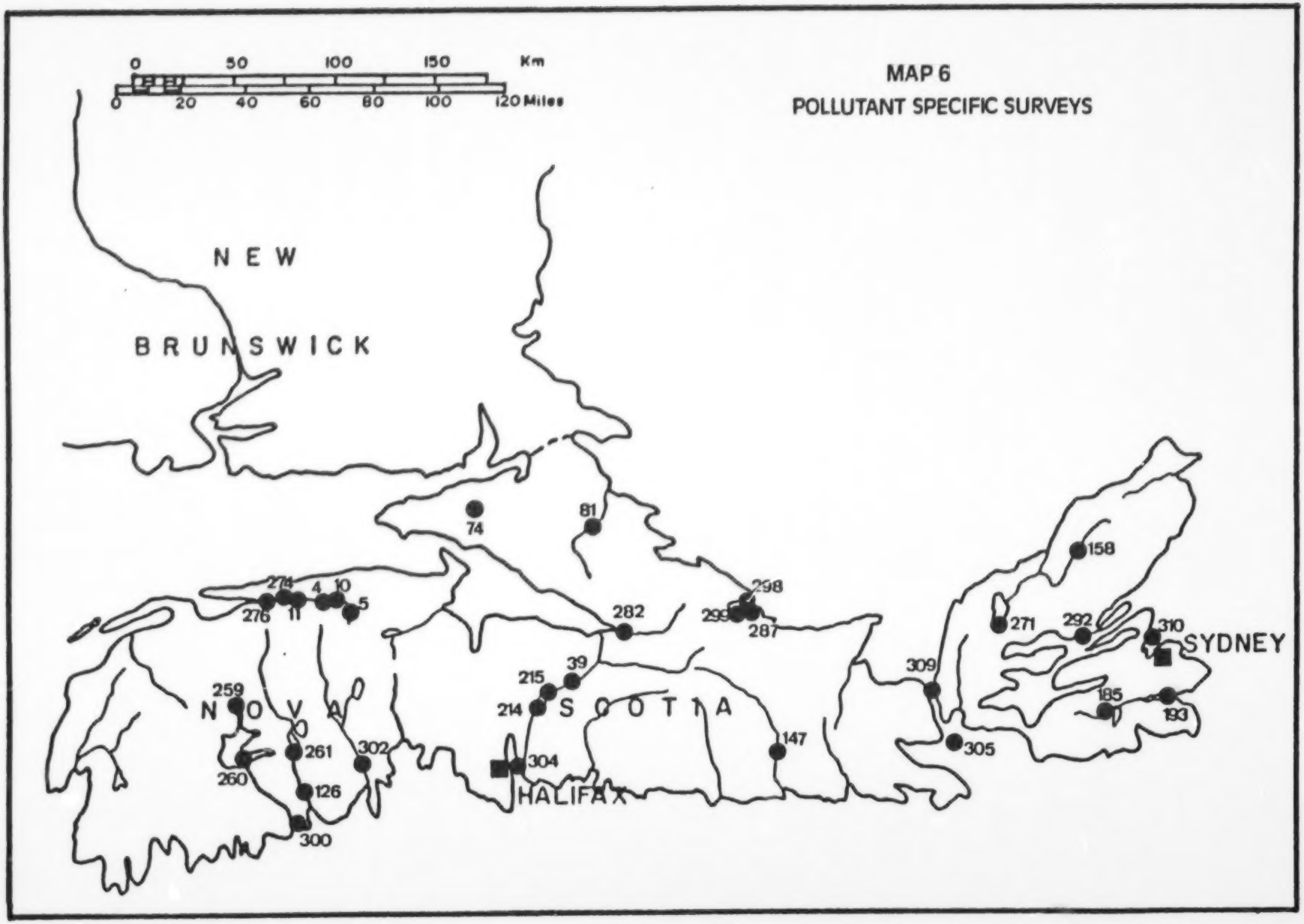
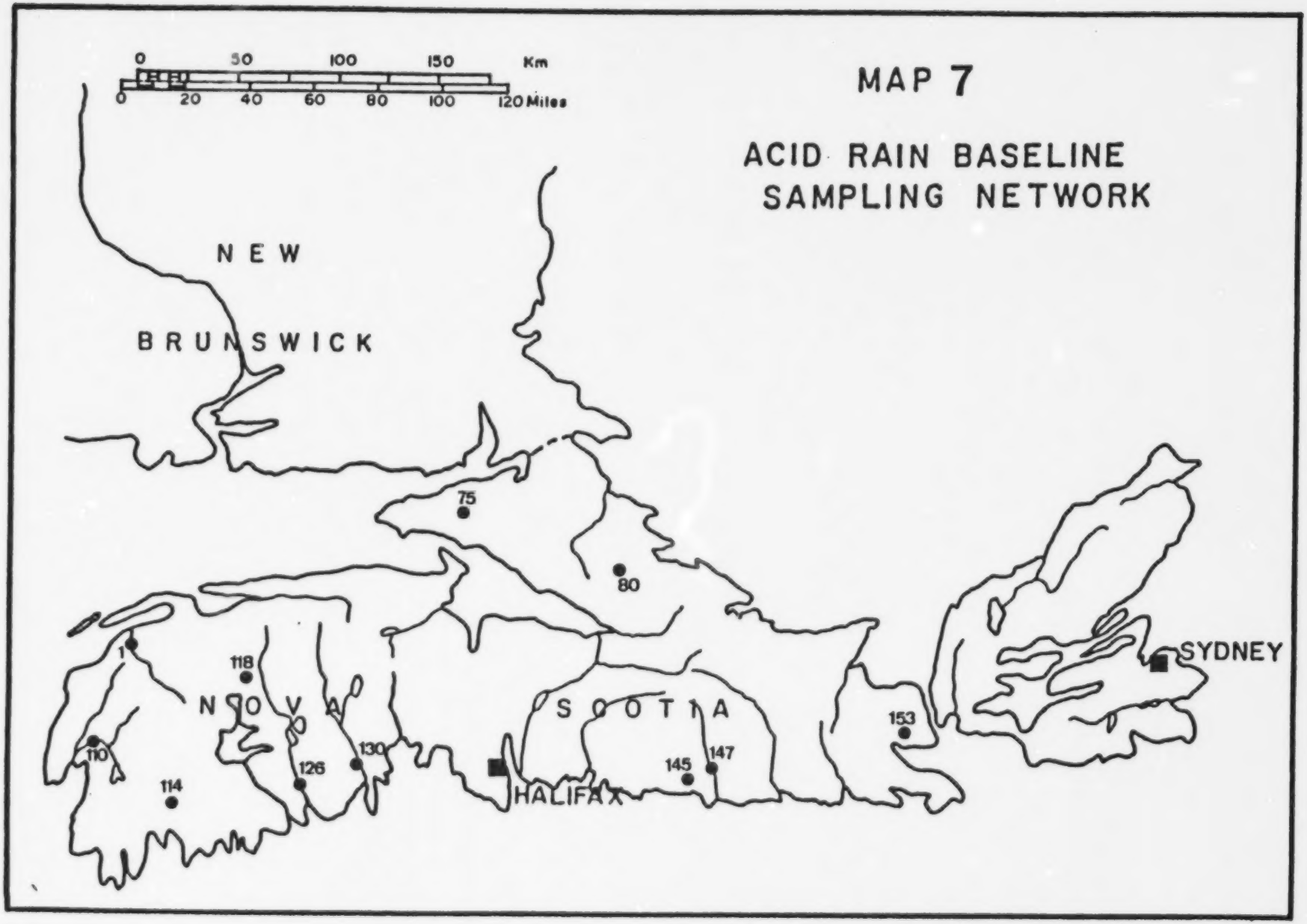
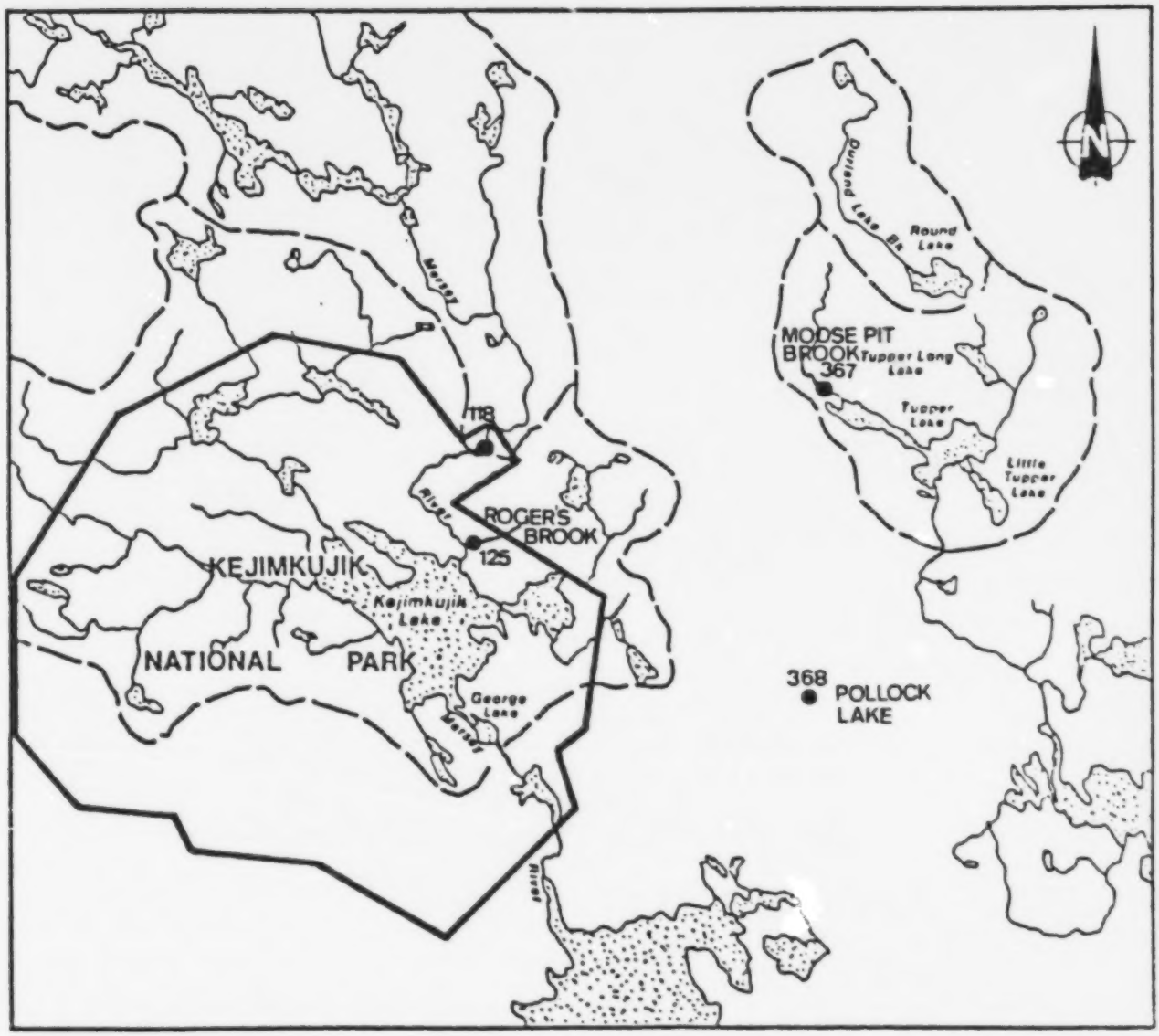

MAP 4
WQB
NATIONAL WATER QUALITY
MONITORING
0 50 100 150 Km
0 20 40 60 80 100 120 Miles
NEW
BRUNSWICK
NOVA SCOTIA
HALIFAX
SYDNEY

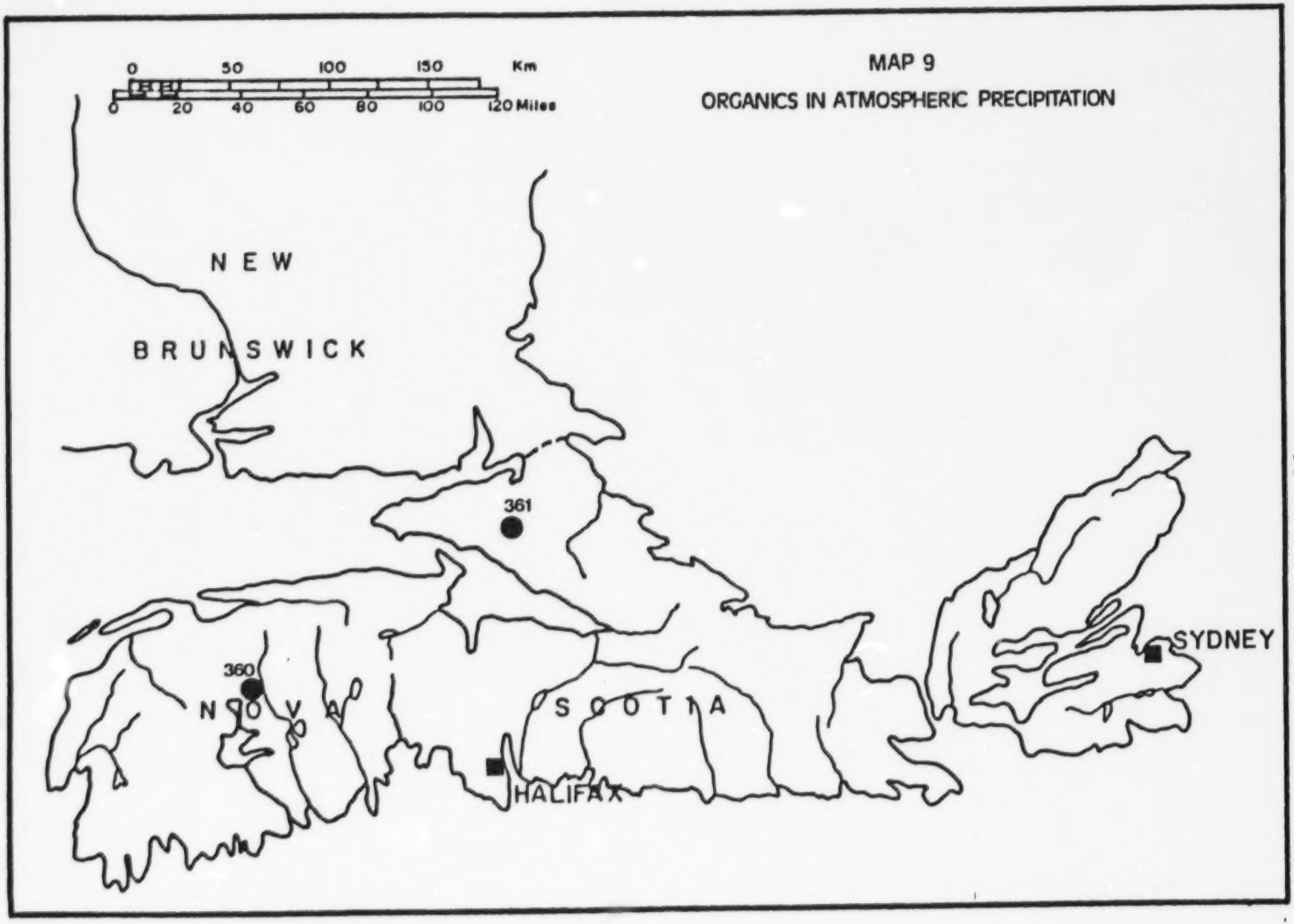

0 50 100 150 Km
0 20 40 60 80 100 120 Miles
MAP 5
ATLANTIC REGION OVERVIEW
NETWORK
NEW
BRUNSWICK
80
4
158
SYDNEY
39
NOVA
SCOTIA
185
147
126
HALIFAX


0 50 100 150 Km
0 20 40 60 80 100 120 Miles
MAP 6
POLLUTANT SPECIFIC SURVEYS
NEW
BRUNSWICK
74
81
158
298
299
287
282
271
292
310
SYDNEY
276
11
4
10
5
215
39
214
NOVA SCOTIA
309
259
185
193
305
147
261
302
260
126
304
HALIFAX
300

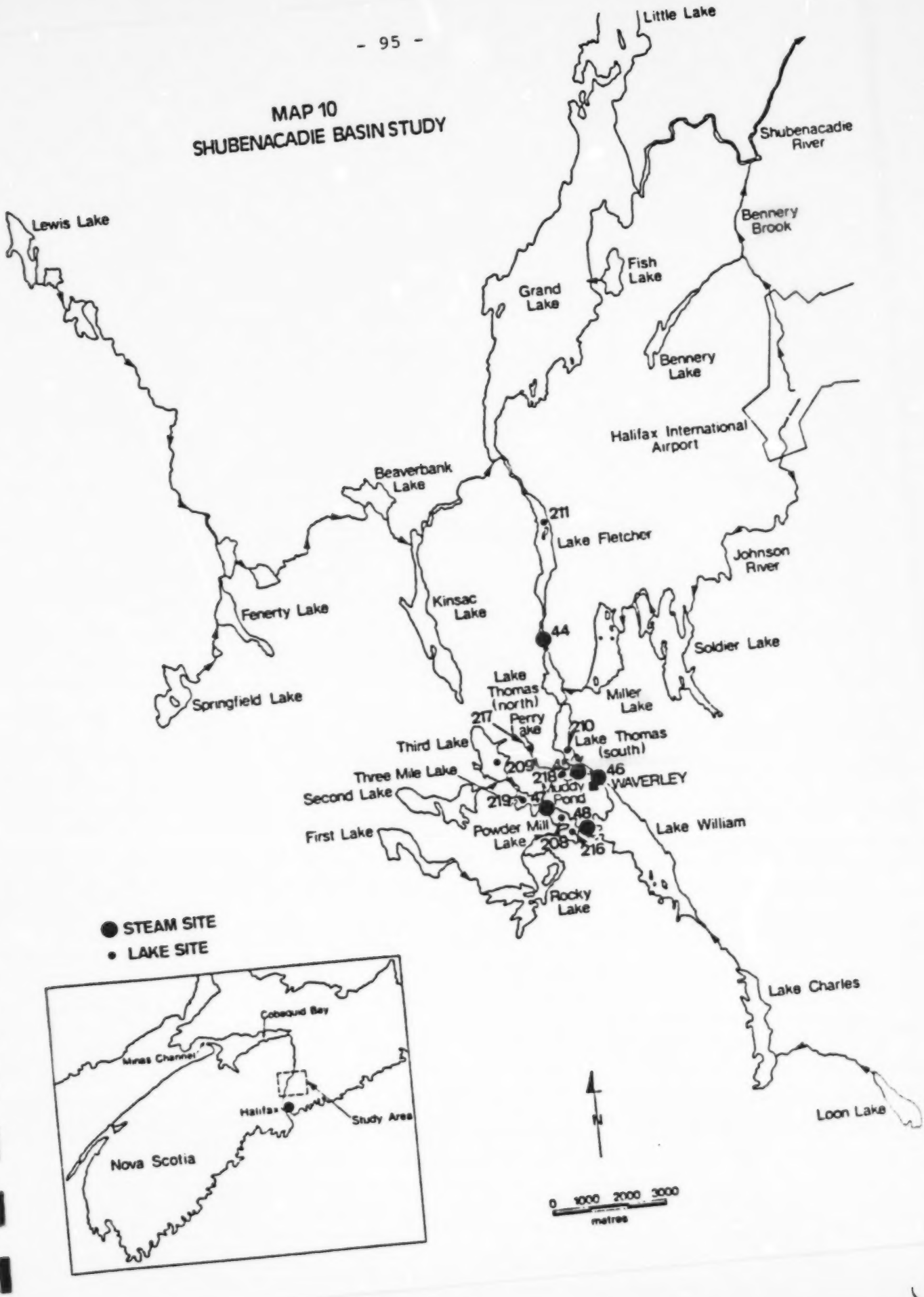

0 50 100 150 Km
0 20 40 60 80 100 120 Miles
MAP 7
ACID RAIN BASELINE
SAMPLING NETWORK
NEW
BRUNSWICK
75
80
1
118
NOVA
SCOTIA
110
114
126
130
145
147
153
HALIFAX
SYDNEY

MAP 8
KEJIMKUJIK BASIN LRTAP SURVEY

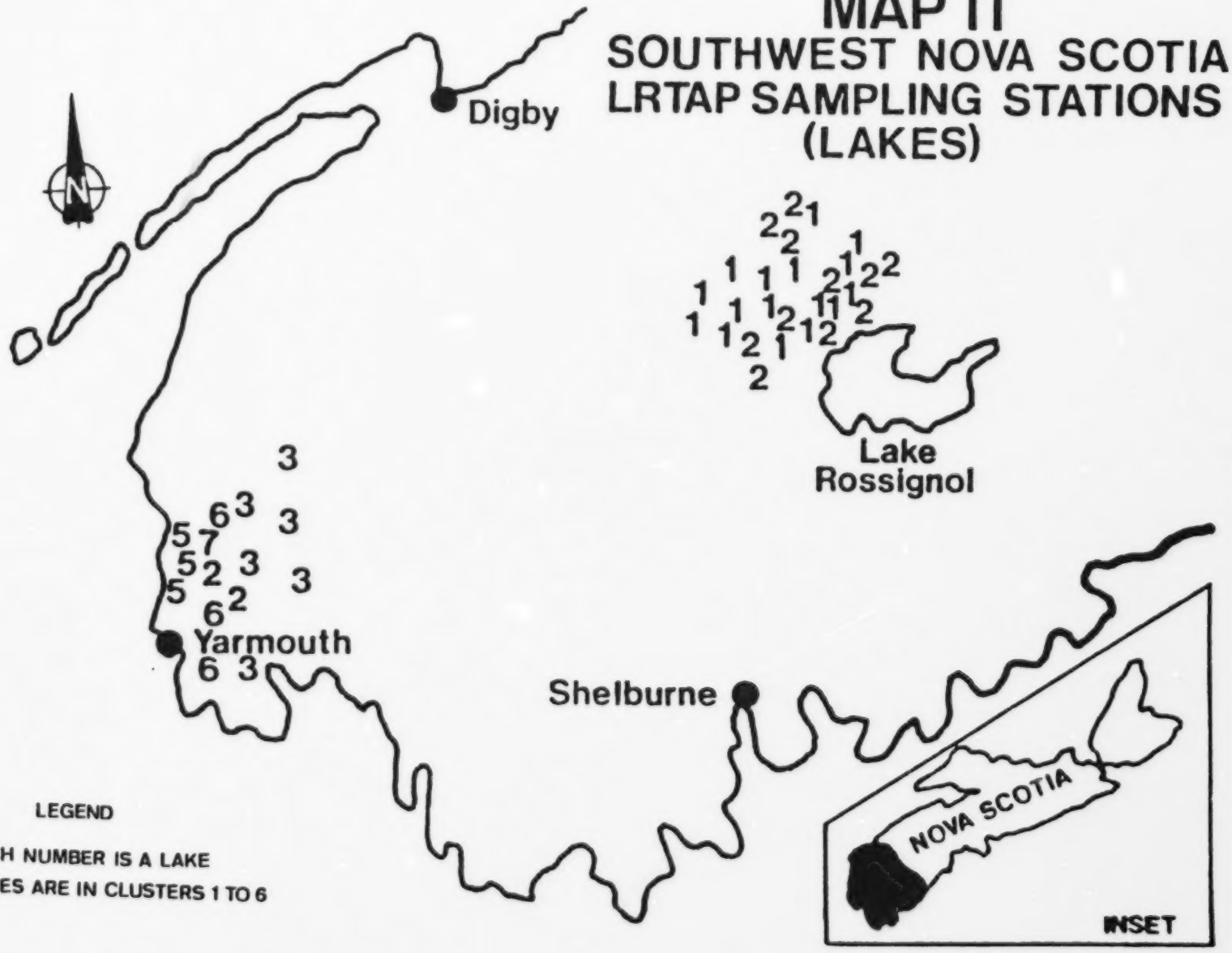


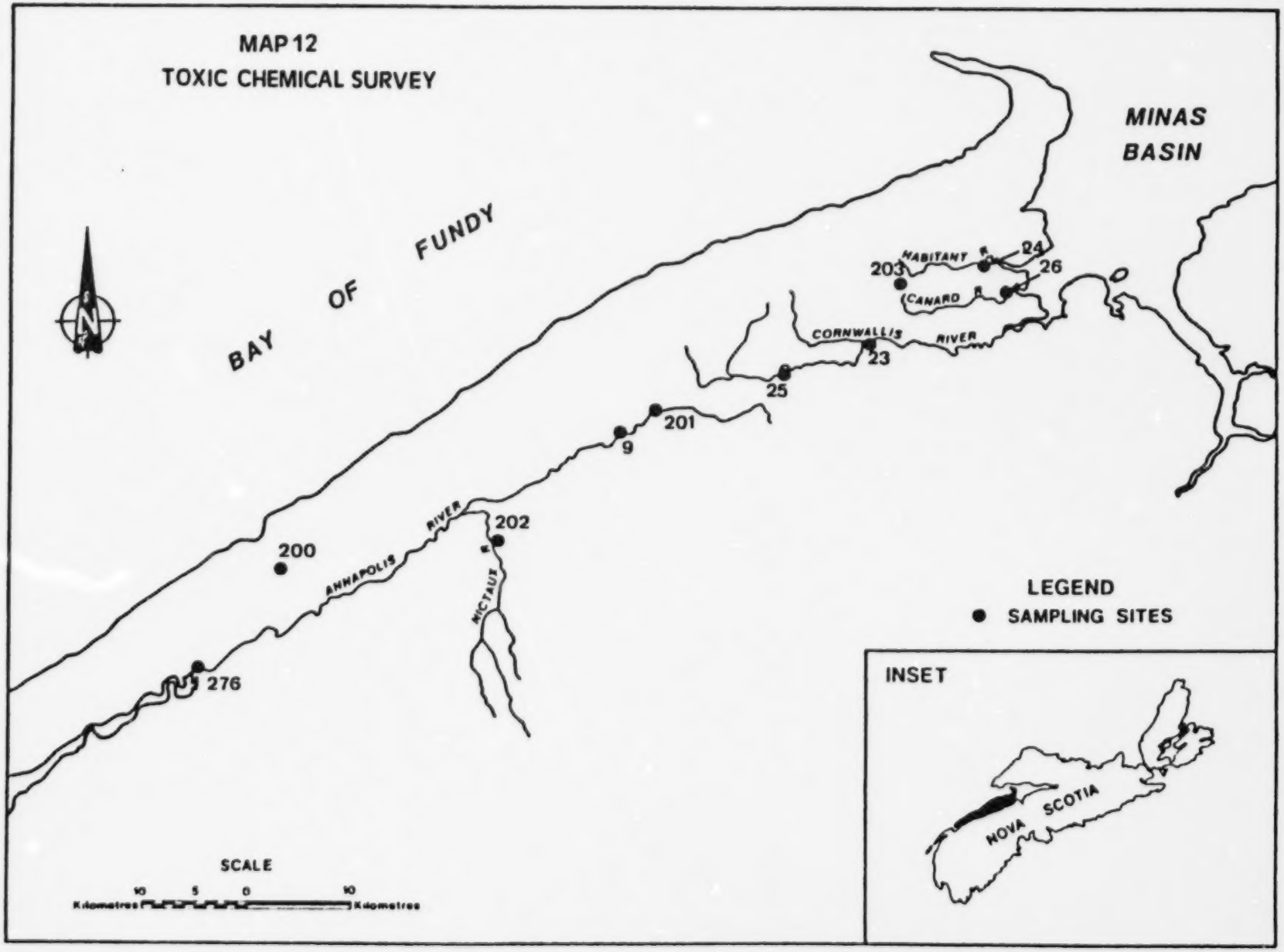

0 50 100 150 Km
0 20 40 60 80 100 120 Miles
MAP 9
ORGANICS IN ATMOSPHERIC PRECIPITATION
NEW
BRUNSWICK
361
360
NOVA
SCOTIA
HALIFAX
SYDNEY

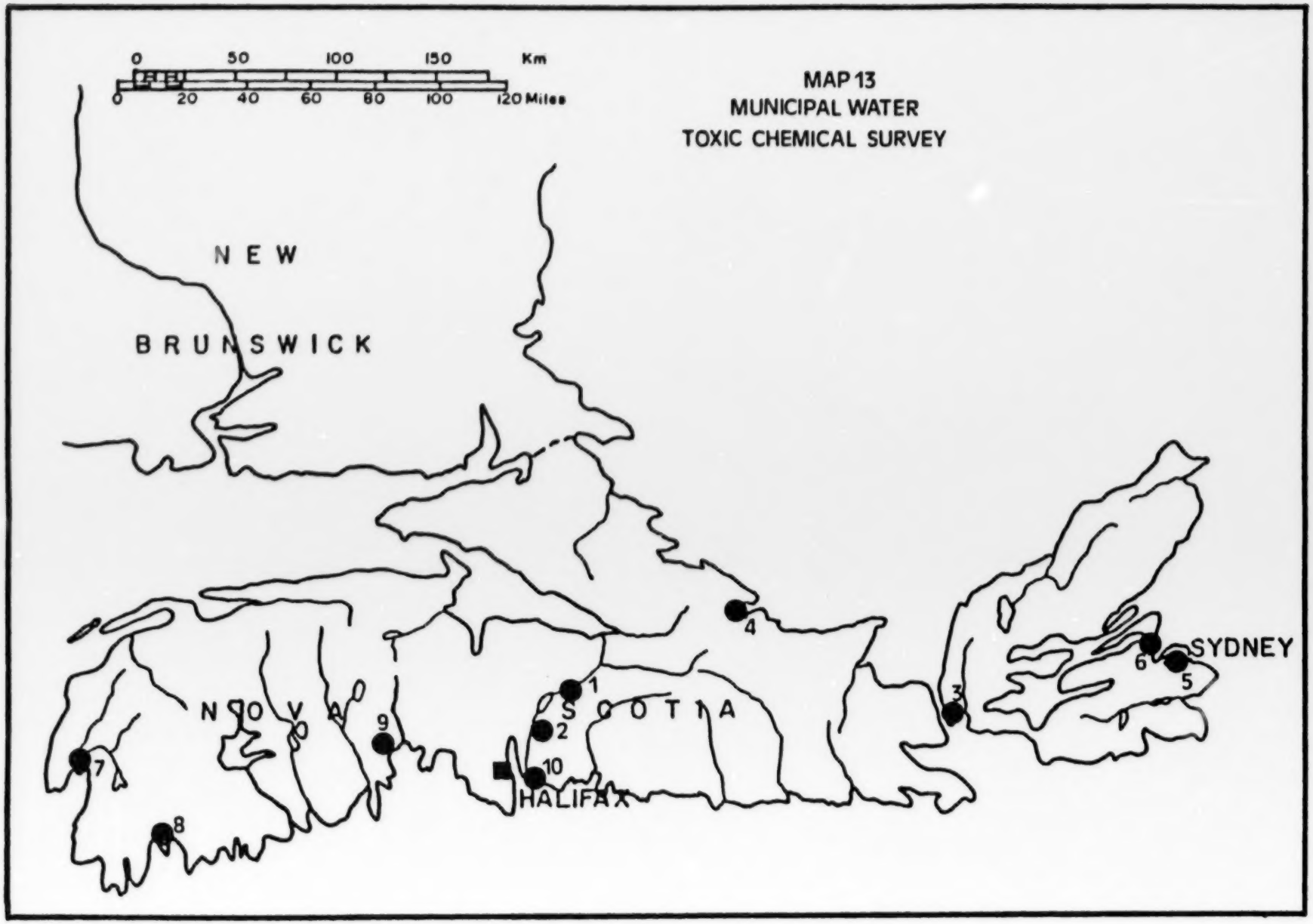
MAP 10
SHUBENACADIE BASIN STUDY



MAP II
SOUTHWEST NOVA SCOTIA
LRTAP SAMPLING STATIONS
(LAKES)




MAP 12
TOXIC CHEMICAL SURVEY
MINAS BASIN
BAY OF FUNDY
HABITANT R.
24
26
203
CANARD R.
CORNWALLIS RIVER
23
25
201
9
202
ANNAPOLIS RIVER
NICTAUX R.
200
276
LEGEND
SAMPLING SITES
INSET
NOVA SCOTIA
SCALE
10 5 0 10
Kilometres
Kilometres


0 50 100 150 Km
0 20 40 60 80 100 120 Miles
MAP 13
MUNICIPAL WATER
TOXIC CHEMICAL SURVEY
NEW
BRUNSWICK
NOVA
SCOTIA
HALIFAX
SYDNEY
1
2
3
4
5
6
7
8
9
10